

BORAL ASPHALT
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CASE STUDY

Airports & Major Projects

MOUNT GAMBIER AND DISTRICT AIRPORT

2018 EDITION



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Project Impact Statement

Airports are amongst the highest-ranking infrastructure facilities in modern society, vital to economic success and cultural growth at both regional and national levels. Australian airports handle over 120 million passengers a year, a number that is expected to double by 2030⁽¹⁾. In addition they contribute directly and indirectly to more than 5% of GDP by functioning as economic and freight hubs⁽¹⁾.

Consequently, when it comes to construction or rehabilitation work, particularly on airside facilities like runways, taxiways and runway-aprons, airport owners and operators engage the most highly experienced and competent suppliers available to carry out the task.

The main objectives on all major airport works are to fit activities into a small daily window of opportunity, meet very short project time frames and manage risk. In addition, there is an exacting level of product quality needed to accommodate tight airport specifications.

Boral Asphalt was engaged by the District Council of Grant to meet objectives similar to these on the Mount Gambier Regional Airport Upgrade Project. The aim of the project was to upgrade the airport pavement to accommodate modern aircraft, which have become increasingly bigger, imposing heavier loads and higher tyre pressures than those using the airport when it was first built in World War 2.

It is anticipated that the upgrade will boost tourism and commerce along the Limestone Coast and Western Victoria as well as increasing transport services in these areas. There is also hope that it will attract a second carrier to the region as well as help the airport meet its legal obligations to the Civil Aviation Safety Authority.

The airport services approximately 95,000 passengers a year and is owned and operated by the District Council of Grant. Project funding was of the order of \$3.2 million, which was sourced from Reserve Funds and a \$500,000 state government grant⁽²⁾.

Client/Construction Team:

Client: District Council Of Grant

Contact: Boral Asphalt
South Australia

Project management & Design Consultant: Aerodrome Design Pty Ltd

Project Scope

South Australia has over 400 regional airports and airstrips, eight of which have scheduled regional services and regional councils operate seven of these. There is a strategy for improving regional accessibility by undertaking improvements to many of these facilities. At Mount Gambier, the scope for structural improvement was to raise the Pavement Concession Number (PCN) of 6 to a minimum of 10 in order to allow larger aircraft unrestricted access to the airport.

The airport has three runways, the longest of which is 1524m. Rehabilitation was directed at Runway 18/36, Taxiway B and RPT Apron. In particular, shoulders of the runway and taxiway were widened and strengthened followed by an overlay of asphalt of varying thickness to restore the camber of the runway and prevent pooling of water. Overlaying the centre runway involved an upgrade to the centreline inset lights.

Approximately 12,000 tonnes of AC14 asphalt was laid on airside pavement in concert with managing aircraft schedules and airport operations. Shape correction was achieved with an AC14 mix of variable layer thickness ahead of a 50mm thick overlay of AC14.

Mount Gambier Airport's new runway is expected to open the doors to more flights and larger aircraft.



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Existing Conditions

To ensure that no risk was taken when poor weather intervened and the project faced the onset of winter, the project was effectively delivered in two installments spanning between February 2011 and 2012. Typically, between December and March, Mt Gambier Airport has an average high temperature of 24°C and average low temperature of 11°C which is the preferred period for pavement work.

After initial site assessments and examination of the geometric design, the composition of asphalt layers was fine-tuned by the District Council of Grant in partnership with Boral so that budgetary constraints could be met while remaining strictly compliant with MOS 139, the Civil Aviation Authority's Manual Of Standards for Aerodromes.

Design

Boral Asphalt established a mobile on-site laboratory where a full range of mix designs was conducted, commencing with trials of different aggregate and sand combinations prior to starting the project in order to meet the unique airport specification. This also allowed the airport to have a dedicated supply within a proximity that eliminated asphalt transport issues.

The desired mix design was then put through the plant, tested and adjusted as required. Finally all production testing had to be done throughout the course of the project, including field-testing on completed work.

A nominal maximum aggregate size of 14mm was used in a dense graded asphalt.



Asphalt crews work to build tarmac each night.

Performance

Prior to the asphalt surfacing stage, some pavement areas on the taxiway were severely distressed and had to be repaired by deep patching with asphalt. The entire pavement complex was badly out of shape, making it increasingly unserviceable due to pooling after rain. After asphalt overlays, all gravel shoulders needed to be built up to new levels.

Operational conditions at Mt Gambier required that all asphalt work be carried out at night so that the airport could return to normal function in daylight hours. As the airport is used by the Royal Flying Doctor Service, asphalt crews had to maintain distance from the second runway when a

medical emergency landing had to take place, with only 60 minutes prior notice. The upgraded airport pavements are performing well after opening to normal aircraft duty. Both the District Council of Grant and project management consultant, Aerodrome Design P/L, have expressed satisfaction with the asphalt delivery phase of the project, benefiting from the partnering approach used by Boral. The successful delivery of the project resulted in an invitation to Boral to participate in the Conference for Regional Airports to share the experiences with other airport operators and managers.

A Navy Dash 8 plane is now using the runway without restriction following the recently completed upgrade. Photo: Border Watch News



“Boral provided a very experienced crew fully conversant with laying asphalt on aircraft pavements at night. The resultant improvement in pavement strength has allowed the airport to permit significantly larger aircraft to use the pavement. Previously the airport was limited to 12 tonne aircraft without a concession. This unrestricted weight limit is now of the order of 20 tonne.”

Peter Francis, Director, Aerodrome Design Pty Ltd

“It was fantastic to have the runway completed in time for larger aircraft like the one that landed this morning (yesterday) – it also justified the cost of this important upgrade.”

Russell Peate, Chief Executive Officer, Grant District Council
(Taken from the Border Watch News 08 Feb, 2012)

“The Boral crew and the asphaltting crews – they work longer on Saturday nights because there are no flights in the area. The airport for us is not just a place we work, we’re quite involved with it.”

Paul McFarlane, Airport Compliance Officer, Mt Gambier Airport,
(Taken from the Border Watch News 02 Feb, 2012)

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SDS: A Safety Data Sheet is available on the Boral website or by contacting Boral Asphalt customer service.

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