



Airport Feature – by Steve Creedy

The Future of Bitumen for Australian Airports

New aircraft, changing materials and evolving techniques are all challenges facing airport pavement engineers and Greg White is determined to ensure Australia retains the expertise to deal with them.

The University of the Sunshine Coast (USC) researcher is moving to plug a gap that opened up when Australia's airports were privatised without the Government setting up a team dedicated to advancing airport local paving technology and practices.

These research teams exist in countries such as the US, UK and France, as well as in the road industry, but Australia's small pool of highly competent airport paving specialists is primarily engaged in delivering projects rather than in research and development.

And while the Civil Aviation Safety Authority has some jurisdiction over airport pavements, its responsibility is focused on safety rather than issues such as cost of ownership and durability.

"That's the part, in my view, that is now missing from our Australian industry," says White, who was a speaker at the Australian Airports Association's Pavements and Lighting Forum in May.

"So, for the last couple of years we've been working with the Australian Airports Association member airports to establish a research program aimed at addressing some of those challenges."

With the assistance of the Australian Airports Association, The Defence Department and some of the larger airports, White and USC have established the Airport Pavement Research Program.

White is the director and says the program is squarely focused on addressing the challenges facing Australian airports and pavement engineers, particularly those around bitumen and asphalt in a country where heat and the tyranny of distance are significant problems.

"At the moment, we're in the process of getting the program up and running," he says. "We'll soon be advertising post-graduate research projects that people can come and undertake full or part time applied research, intended to provide answers but also to provide the very specialised training opportunities for the next generation of pavement engineers."

Polymers added to bitumen to change its characteristics, the specifications contractors are expected to meet and better methods of testing suited to Australian conditions are other areas it will be investigating.

White emphasises that this is not a “blue sky” focussed role and notes the US Federal Aviation Administration and others around the world have already developed many smart solutions to problems not dissimilar to those in Australia.

He sees his role as keeping watch over overseas developments and working out which may suit Australia. It will then be a case of working with industry, the designers and builders to set up a validation process so these international breakthroughs are not just adopted without local validation.

This also applies to test methods.

“Every country has its own suite of test methods so you can’t just blindly adopt an American standard and use it in Australia because our testing equipment isn’t necessarily the same or our testing protocols are often different,” he says. “Everything needs to be checked, and if you like, Australianised.”

One of White’s goals is to improve the lifespan of runway surfaces.

He says some runway surfaces have slipped back to an expected lifespan of 10 years from a previous life of 15 years.

“It would be nice to think we could get it back to 15 but my target is to get it from 10 back to 12,” he says, noting this would mean good savings for airports.

A pilot project already underway has looked at performance-based asphalt specifications.

“The traditional specification dating back more than 30 years was very recipe based and prescriptive,” he says. “Over about six months last year and into the start of this year we’ve spent some time developing a specification that is more outcome focused and performance-based.

“We did that in consultation with airports — Australian Airports Association members — designers and asphalt construction contractors.

“The provisional specification is about to be used on its first real project, which is Whitsunday Coast Airport at Proserpine, and is also part of the tender documents for Dubbo airport which is currently out to tender.”

This system calls on the asphalt contractors to use their expertise to determine how to do the job, but then take responsibility for guaranteeing the end product will perform as described.

White admits this is a transfer of responsibility but says Australia’s asphalt contractors all have plenty of experience.

“They’ve all seen things go well and they’ve all had challenges so they have a very good basis to be able to deliver these solutions,” he says. “Some are more enthusiastic about that transition than

others but they're certainly making some good progress. And some of them are viewing this as an opportunity to actually add significant value."