



SAMI SOLUTIONS

GlasGrid

Wollongong City Council



GlasGrid Solution No. 1

GlasGrid performs well in Wollongong field trials



O'Briens Road, Figtree: Note the cracked control section in the foreground, with the GlasGrid reinforced area immediately behind.

GlasGrid, a self-adhesive fibreglass pavement reinforcement mesh, appears to be the most appropriate solution to reflective cracking on lightly trafficked roads, based on the results of a comprehensive field trial of reflection crack control products conducted by Wollongong City Council.

The Council's Geotechnical Engineer, Peter Tobin, said the Council decided to trial a range of products which claim to eliminate or reduce reflective cracking, as it has a large number of bound pavements within its road network, of which about one-third are starting to exhibit some longitudinal and/or transverse cracking.

The bound pavements are a result of the self-cementing properties of slag incorporated in the roadbase used on many of the roads in the region during the past 25 years.

"All the information available at the time on reflection crack control dealt with heavy duty pavements," said Peter.

"We knew that the Queensland Department of Transport was carrying out some trials at Beerburrum and Ipswich-Warwick and decided to complement theirs by using a similar evaluation technique."

The site selected for the trials was O'Briens Road, Figtree, which is a local road and a minor bus route. Constructed in 1970, this was one of the first trial pavements built using a slag roadbase.

It was surfaced with a sprayed seal, which had performed well but was due for resurfacing. A 40 m section of O'Briens Road, resurfaced with asphaltic concrete in June 1990, had reflected the cracking

pattern of the pavement within 10 months, indicating that some form of pre-treatment was desirable.

A 450 m long section of the road was selected for the trials including the section which had been resurfaced with asphaltic concrete without any crack control procedures. Discussions were held with the suppliers of various crack control products and seven trials were proposed in addition to the Control Section already constructed.

Details of the trials and their costs (at October 1991) follow:

- Control Section — Resurfacing only \$6/m²
- 1. Polypropylene Mesh — \$24/m²
- 2. Fibreglass Mesh (GlasGrid) — \$23/m²
- 3. Crackfilling plus GlasGrid — \$28/m²
- 4. Crackfilling plus Polypropylene Mesh — \$30/m²
- 5. Profile and Replace with Asphaltic Concrete — \$46/m²
- 6. Crackfilling and Paving Fabric — \$20/m²
- 7. Paving Fabric — \$17/m²

As a result of the field trials, which were inspected on a number of occasions over a two-and-a-half year period, Peter Tobin reached the following conclusions:

- Without reflection crack controls, a new asphaltic concrete surface will soon reflect the underlying cracking pattern.
- The fibreglass mesh, profile replacement and polypropylene mesh appear to have effectively controlled reflective cracking.
- Crackfilling doesn't appear to have



On another project in Wollongong, the F6, typical cracking can be seen on the shoulder, with no cracking visible on the travelling lanes, which were reinforced with GlasGrid prior to AC overlay.

enhanced the performance of any of the products.

- The unit rates for fibreglass mesh and polypropylene mesh are similar and half the cost of profiling and replacement of the base layer.
- Placing the self-adhesive fibreglass mesh can be done with minimal disruption to routine asphaltic concrete resurfacing.
- Using polypropylene mesh or fabric treatments requires co-ordination of both asphaltic concrete and sprayed seal works.
- Fixing and tensioning polypropylene mesh requires experienced tradesmen to operate fixing equipment and to lay and tension the product. It also has little tolerance for irregular shape and requires a correction course for best installation.
- Placing paving fabrics can be hampered by even slight breezes.
- The paving fabric appears to have controlled reflective cracking only briefly, with the original patterns re-appear-

ing about two years after treatment, which confirms the result of the Beerburrum Trial by the Queensland Department of Transport.

- Polypropylene mesh and paving fabric may present a future maintenance problem where milling is required. Fibreglass mesh, on the other hand, is readily broken up during routine milling operations.

Commenting on the trials, Peter Tobin said the fibreglass mesh — GlasGrid—had come out well on top for its ease of use and performance.

"We had very few problems using GlasGrid.

"It was easily laid and just about the only problem we encountered was a little bit of mesh pick-up or shoving when the paver started and stopped.

"We had a lot more problems in laying both the geotextile paving fabric and the polypropylene mesh," he said.

"The paving fabric was difficult to control in the wind and we also experienced problems with excess rolling squeezing the bitumen through the fabric.

"Likewise, placing the polypropylene mesh was difficult and required the use of "Ramset" fasteners. Low spots in the road also needed additional stapling and joining of the rolls had to be carefully matched to avoid a rippling effect. After sealing, the mesh still protruded above some low spots and it was necessary to cover these areas with hand spread asphalt, prior to final laying by the paver."

More recently, Wollongong City Council has used GlasGrid in the rehabilitation of a couple of hundred metres of West Dapto Road, West Dapto. This single carriageway had been used as a haul road by coal trucks for a number of years and was exhibiting severe longitudinal and transverse cracking, with some of the cracks up to 20 mm wide. Crack sealing had been attempted, but with little success, so a decision was taken to place a new overlay.

"The problem at West Dapto Road is that the sub-base sits atop some very reactive clay," said Peter.

"While we haven't resurfaced the entire roadway, we will as funds become available," said Tobin.

GlasGrid was placed over a correction course and was covered by 40 mm of AC14.

This Case Study is based on "Field Trials of Reflection Crack Control Products on a Lightly Trafficked Bound Pavement" by Peter Tobin, Geotechnical Engineer, Wollongong City Council.



For further information on any of the products featured in this Case Study or any of SAMI's other specialist road maintenance products and services, please contact:

SAMI Pty Limited A.C.N. 001 089 416
 12 Grand Avenue, Camellia, NSW 2142
 Telephone (02) 9638 0110. Facsimile (02) 9638 4090.

