



SAMI SOLUTIONS

Cold Insitu Asphalt Recycling RTA NSW



Cold Insitu Asphalt Recycling Solution No. 1

Cold insitu asphalt recycling in NSW



Rear view showing screed and partially compacted surface.

Road recycling specialist SAT and pavement consultant CERTS recently joined forces in the first application of insitu cold asphalt recycling technology in NSW.

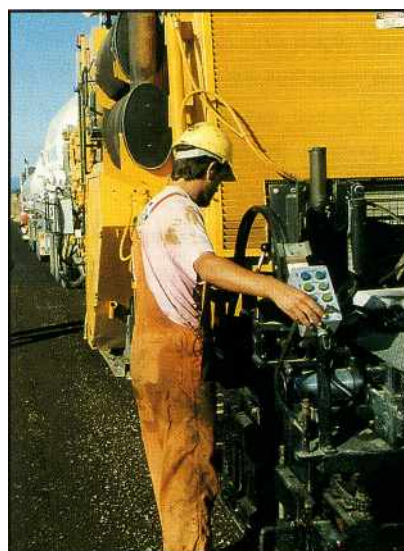
The project involved recycling a 450 m long section of heavily stripped asphalt on the Hume Highway at Coolac, 25 km north of Gundagai.

The existing full depth asphalt pavement, one of the few remaining two lane sections of the Hume Highway, was deteriorating rapidly with rutting up to 100 mm deep.

The RTA Wagga Wagga Region agreed to give SAT the opportunity to demonstrate how its cold recycling technology could effectively rehabilitate the pavement.

SAT's exclusive cold recycling technology has been trialed exten-

sively in Queensland on granular pavements, but this would be the first major trial in NSW and the first trial recycling full depth asphalt.



The cold insitu asphalt recycling train including emulsion tanker, cement tanker & SAT's specially designed, computer-controlled profiler.

So that the performance of the recycled section could be measured against the existing pavement, similarly sized control sections were left on both sides of the trial section.

The SAT cold asphalt recycling process utilises a specially designed, computer-controlled profiler which mills the existing material to a depth of up to 250 mm and mixes it with the necessary additives including cement and/or bitumen to create the desired pavement strength and flexibility.

This recycled material is then placed and partially compacted in a single pass.

Depending on the type of application, treatment rates can vary from 4000 m²-8000 m² per day.

A major benefit of the environmentally-friendly method is that there



Left: The pavement surface was badly deformed with wheel tracks varying in depth from about 50 mm-100 mm. Right: The finished recycled pavement with a Chipseal.



is no waste as all existing materials are re-used and only minimal new materials are required.

Pre-engineering work conducted by CERTS included pavement assessment using Falling Weight Deflectometer testing and mix design—which can be formulated to satisfy a wide range of design requirements and material types.

For this project, the pavement design called for a 200 mm thick recycled pavement incorporating a 5% cement and 2% bitumen emulsion. The design life is 10 years.

The performance of the pavement has been monitored several times since completion in May 1995 and to date it has performed well without any significant deformations or surface deficiencies.

The control sections were not recycled, although the ruts have been filled with hot mix asphalt several times.

After less than 12 months, these areas are ravelling badly and require repeated treatment.

However, the deflection history of the treated pavement clearly demonstrates the beneficial effects of the recycling process. On the untreated sections, deflections have increased by 200-300%, while the increase on the recycled section is less than 15%.

Because of the high volume of heavy traffic on the Hume Highway, SAT and CERTS have recommended that the surface should be protected with a suitable wearing course to further enhance the pavement's performance.

Putty Road

SAT followed up the Hume Highway project with another difficult application on Putty Road, the main link between Singleton, near Newcastle, and western Sydney, on behalf of the RTA Sydney Region.

Putty Road was heavily deformed and incorporated many full depth asphalt patches, to the extent that the existing pavement resembled a "patchwork quilt". The area involved in this recycling project was a 2 km long, 8 m wide

section of the road.

SAT recommended that the combined grading of the existing pavement would be satisfactory for recycling without modification and the only additive incorporated in the recycled material was water, to assist compaction.

The finished depth of the recycled pavement was 250 mm. A 150 mm granular overlay was then placed, rolled and trimmed and a 10 mm bitumen chip seal was placed to complete the works.

The resulting homogeneous 400 mm thick, free-draining pavement was constructed with the minimum amount of new materials and has eliminated problems associated with reflective cracking and inconsistencies in strength throughout the pavement.

Its performance will be closely monitored by SAT and the RTA.

Granular recycling of this type also offers high productivity rates with the entire recycling project being completed in less than 10 days.



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:
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