Book review

Thin bituminous surfacings and desirable road user performance.

J. Oliver, ARRB Transport Research Ltd, New South Wales, 1999, first edition, £40, 26 pp.

This report reviews work carried out on thin and ultra-thin surfacings. It draws heavily on research carried out by the Transport Research Laboratory (TRL) and it also covers developments in Austria and Australia.

The report examines a number of surfacing materials that are being used in Europe. Many of these materials have not been used in Australia. Oliver considers these materials from the road user's viewpoint in terms of safety, comfort and cost. To address these requirements the road provider must consider the low- and high-speed skid resistance, tyre noise generation, spray generation, rolling resistance, and construction and maintenance costs. These varied requirements can never be met simultaneously by any one material and therefore the selection of surfacing is a matter of choosing the most appropriate material for each application.

Open-graded asphalt is commonly used in Australia. It has many advantages, but it cannot be laid less than 25 mm thick and it is vulnerable in areas such as heavily trafficked intersections. Oliver examines thin and ultra-thin surfacings. This covers slurry surfacings, multi-layered spray seals (known as spray seals in Australia), paver-laid surface dressings, thin asphalt, thin stone mastic asphalt (SMA) and high-friction resin-based binder systems. These materials are generally produced as proprietary products.

The performance of surfacing materials from TRL trials, VicRoads surfacing trials, Austrian experience of thin surfacing and experience of Safepave (known as Novachip in Australia) and

SMA in Australia, are all considered separately with summaries of the main findings. Oliver concludes by discussing the effectiveness of the surfacings reviewed in providing skid resistance, low tyre generated noise, conspicuity of road markings and spray generation.

He considers the concept of separation of function in which a thin surface course is laid that need not contribute to the load-bearing capacity of the pavement to be economic and technically sound. The application of this concept has led to the development of new classes of thin and ultra-thin surface courses and other surfacing materials that are better able to meet the increasingly stringent demands of road users. Through minimizing the thickness of the surface course, it is possible to deliver high performance at minimum cost. The surface life of these materials may be less than conventional dense grade asphalt, but this is likely to be acceptable given the improved overall level of service provided.

The greater demands being placed on the surface course, coupled with increased road-user awareness, will continue to create more demand for improved road surface properties. The specialist surfacings described in this report are seen as a way of satisfying these demands. As a result, the new thin and ultra-thin surfacings are gaining acceptance in Australia.

The review by Oliver gives a good overview of various surfacing materials and the reader is able to identify the source references for more detailed information. However, the inclusion of experience from France, where many of these materials originated, would have enhanced his review.

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*Proc. Instn Civ.
Engrs Transp.,
2000, 141, Feb.,
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