

## Comment

# Demand drives PMB into lower layers

The move from use of hot rolled asphalt (HRA) to thin surfacing over the last decade has made the addition of Polymer Modified Bitumen (PMB) binders in surface courses a common occurrence. But over the next few years the drive for improved performance means that use of PMBs in binder and base courses is likely to become increasingly common.

Modern surface courses are laid in thinner layers than HRA used to be, which exposes the underlying binder course to greater temperature variations than before. This, combined with the need to protect the base course from water ingress and prevent rutting, is placing a greater demand on the binder course and calls for a higher performance solution.

The Highways Agency's Pavement Design Manual leads many asphalt suppliers to consider using high modulus binder courses bound with 35 pen bitumen

(HMB35) to meet these demands. But designing an HMB35 to meet stiffness and rutting resistance requirements without using a PMB binder is very difficult.

PMB binders can also help increase a binder course's resistance to cracking and the benefits of using PMB in every layer was demonstrated during recent resurfacing of the M5 in Devon. Here the concrete carriageway was overlain by a flexible membrane, microsurfacing layer, binder course and surfaces which all contained PMB. The membrane was applied directly to the concrete to prevent water ingress and prevent reflective cracking while the PMB binder course gave maximum performance from the minimum thickness of asphalt.

The resurfacing on the M5 was probably the first UK contract to make such extensive use of PMB and seems to be a more sophisticated engineering solution to reflective cracking than the 'crack and seat' approach.

Ian Walsh is  
Technical Director  
at Babbie



Current investigations have placed use of HMB15 base courses on the back burner for the moment but an extremely stiff base course formed using a PMB binder is already available. Increased use of PMBs in base courses will enable significant savings in pavement thickness to be made without compromising durability.

The challenge now for both asphalt suppliers and clients is not only to be aware of the wide range of binders and binder modified materials available but also to specify and use them correctly. Use of these new materials is dependent on clients being able to fund engineered solutions to pavement defects but sadly this is rarely the case at present. Frequently these problems are covered up using surface dressing or microsurfacing – the only slight silver lining is that performance of these materials is also boosted by PMB binders.