

CASE STUDY

WHERE? Cambridge Road, Meadowbank Roundabout

WHEN? 1999

WHO WAS THE CLIENT? Hertfordshire County Council

OVERVIEW:

The roundabout is located on the A505 at its junction with Meadowbank, north east of Hitchin. It is used by a regular bus service and also heavily laden lorries from a nearby quarry to the north. Due to the cornering, braking and acceleration forces the wheel loading on the roundabout was severe.

The existing road consisted of a concrete road base with asphaltic upper layers and was severely cracked.

Over a weekend in 1999 the top 90mm of surface was milled off, on both the roundabout and the adjoining stretches of the A505. On the roundabout and immediate approaches only Tensar Glasstex® P100 was laid on to hot 200 pen bitumen which had been sprayed at a rate of 1.0 litre/m² on to the planed road surface. This was laid by specialist installer Foster Contracting Ltd using their purpose made lay-down rig which places, tensions and brushes the Glasstex® on to the surface. A little over 2,000 m² of Glasstex® was installed over a weekend on two consecutive afternoons, to comply with the programme and traffic management constraints.

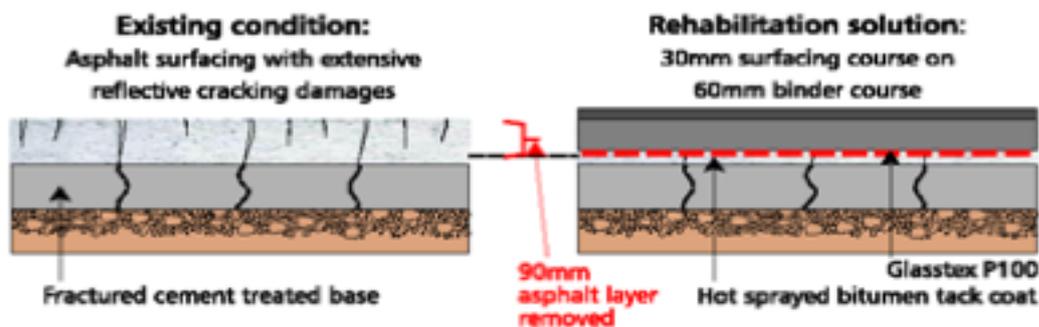


A conventional HRA base course followed by a 30mm thick asphalt surfacing layer was machine laid directly over the Glasstex® on the roundabout and on to a tack-coated milled surface on the adjoining A505. In 2005 this resurfaced but unreinforced adjoining A505 had deteriorated to a degree that the client decided to resurface it, while the roundabout was deemed not to warrant re-surfacing.

In 2008 the client, in conjunction with Tensar International and Foster Contracting undertook a series of test cores through the asphalt pavement to assess the nature of the materials and degree of cracking. The substrate below the Glasstex® varied from sound asphalt to crumbling asphalt and crumbling concrete and asphalt. The Glasstex®, with yarns that appeared well coated with bitumen and undamaged after 10 years in service, was well bonded both to the upper and lower pavement layer, other than for the instances of a badly crumbled surface below.

In some of the cores cracks from the substrate had started to appear in the overlay but in comparison with the unreinforced control sections on the adjoining A505 the Glasstex had clearly succeeded in mitigating the development of reflective cracking and the client was satisfied with its performance and would use it in similar situations elsewhere.

CHALLENGES:



The roundabout and adjoining road, the A505 were subjected to severe loading, mainly from a combination of heavily loaded lorries travelling from a nearby quarry and also from regular local buses. The road was badly cracked and in need of re-surfacing and strengthening.

THE SOLUTION:

The upper 90mm of asphalt was milled off and in addition at the roundabout 200 pen straight run bitumen was spray applied and Tensar Glasstex® P100 paving composite was then immediately installed by machine directly on to the planed surface. A conventional 60mm thick HRA base course was placed on top followed by a 30mm thick surfacing.



BENEFITS TO CLIENT:

Glasstex® has demonstrably extended the pavement life. The adjacent A505 road was repaired at the same time and using the same method as on the roundabout but without Glasstex®: this road needed additional repairs after 6 years. In contrast the client felt that the roundabout condition did not merit resurfacing at that time despite the more severe wheel loading.



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