

ULTILOW

Proven performance

SAVING TIME AND CARBON EMISSIONS USING WARM MIX ASPHALTS

The challenge

As part of this long-term contract to maintain sections of Scotland's major road network, the client, Bear Scotland were looking for innovative ways to help meet their key objectives of minimising disruption to road users and reducing carbon emissions associated with maintenance work. The schemes would mainly involve night time and weekend lane rentals, with a limited time window to complete the work and reopen for traffic the next morning. This meant that maximising productivity and volumes laid per shift would be vital. However, the large overall volumes of base and binder course materials also presented a big opportunity to reduce carbon emissions by using lower carbon materials. The client was interested in warm mix

asphalts as an innovative way of delivering these reductions but understandably wanted to see clear evidence that they were the right choice for such large and strategically important maintenance schemes.

Our solution

Tarmac's ULTILOW warm mix asphalts are manufactured and supplied at lower temperatures than conventional hot mix asphalts. As a result, they can deliver proven carbon footprint savings of between 8 and 12% compared to hot equivalents. They have a successful track record of use on UK roads since 2013. Warm mix asphalts also offer proven gains in productivity, requiring less time to reach trafficking temperatures and allowing more work to be completed within a

given operating window. The plan was to use both separate warm mix AC32 Dense Base and AC 20 Dense Binder courses and also, where required, a warm mix EME2 14mm combined base and binder course. These materials would have the same grading, binder content, material properties and voids as a standard hot mix asphalts but would cool up to 90 minutes sooner. This would enable paving teams to follow on more quickly and allow several layers of base or binder course to be completed in one shift and still reopened on schedule.

Results and benefits

In line with Bear Scotland's values of Excellence, Collaboration, Innovation and Integrity, Tarmac's focus was to work collaboratively with the client to show the

benefits of using warm mix asphalt to reduce carbon emissions and improve productivity. Since this approach was used, progress has been carefully monitored. Tarmac estimate that so far, between April 2021 and April 2022 around 307 tonnes of CO₂e have been saved by using warm mix asphalt and RAP (168 CO₂e from warm mix alone). Initially warm mix asphalt was used only where required to allow increased volumes or to enable several layers to be laid in one shift to meet traffic management restrictions. But after seeing how well the material has performed and the positive test results coming back from site along with the reductions in carbon emissions and gains in productivity, the client has now given Tarmac the go ahead to use warm on all base and binders on the 5G contract.

The client, Bear Scotland, was delighted with the outcome: "Using Utilow warm mix asphalts on the South East Network Maintenance Contract has helped us deliver on our commitments to minimise disruption to road users on our network, optimise productivity to ensure value for

money and achieve significant reductions in carbon emissions to help meet Scotland's climate change commitments. We see it as an important step in the journey towards a more sustainable approach to maintaining the road network"

