

CASE STUDY

M40 MOTORWAY, UK



ASISOLUTIONS.CO.UK



UK Highways Ltd operates the M40 DBFO, a 123 km motorway comprising 3 to 4 lanes and carrying traffic volumes exceeding 100,000 vehicles per day on some sections, including more than 15,000 commercial vehicles. The route includes approximately 250 structures, with most of the carriageway surfaced in SMA installed in 2002, alongside sections of original HRA dating back to 1989.

Running between London and Birmingham, the M40 is a critical and heavily trafficked part of the UK's strategic road network. UK Highways has sustained its long-term performance using innovative and proactive asset management approaches.

Following a successful product assessment monitoring trial, RHiNOPHALT® Asphalt Preservation was formally incorporated into the M40 maintenance strategy. The trial confirmed the treatment's ability to perform under sustained high traffic loading, providing demonstrable assurance of durability and safety. UK Highways Ltd approved the use of RHiNOPHALT®, which was the only BBA HAPAS-approved, Gilsonite-fortified asphalt preservation system authorised for use on the M40 DBFO.

UK Highways M40 Ltd undertook the first application of RHiNOPHALT® Asphalt Preservation in 2008. This followed a two year product performance assessment for BBA HAPAS accreditation for the high speed road network. We adopted this pavement preservation strategy through a rolling programme of applications, treating the network three times over.

UK Highways is satisfied that alongside the economic and environmental benefits, RHiNOPHALT® has delivered on its performance claims for significantly reduced

Gareth Llewelyn MCIHT
General Manager, UK Highways M40

THE CHALLENGE

Historically, the maintenance strategy involved large-scale surface course replacement every 10-14 years. Over the 30-year DBFO contract, this meant 2-3 major resurfacing interventions, depending on the surface age in 1996.

THE SOLUTION

After a successful trial in 2005 and a subsequent assessment period, UK Highways decided in 2008 to apply RHiNOPHALT® across the entire motorway over five years. The treatment was integrated into a preventative maintenance programme, with reapplication scheduled every five years.

To date, over 5.5 million m² of asphalt surface has been treated with RHiNOPHALT®, with night-time applications minimizing disruption and achieving an average production rate of >20,000 m² per shift. The result: a carriageway that retains the performance and appearance of newly laid asphalt.

CARBON SAVING

Traditional asphalt resurfacing generates significant carbon emissions through raw material processing and asphalt production. RHiNOPHALT® avoids these carbonintensive processes by preserving existing surfaces and extending their design life.

A remarkable achievement of >90% carbon savings was realised compared to asphalt resurfacing over the duration of the M40 DBFO contract.

Climate Resilience

- Reduced moisture infiltration: RHiNOPHALT® Asphalt Preservation seals the surface, preventing water from penetrating the pavement. This helps protect against accelerated deterioration caused by more frequent heavy rainfall, freeze-thaw cycles and flooding.
- Improved resistance to oxidation and heat: By slowing the ageing of the asphalt binder, RHiNOPHALT® helps the surface remain flexible for longer. This reduces cracking and brittleness that are increasingly common with rising

REDUCING WHOLE LIFE COST

- Preventative preservation reduced the frequency of major interventions.
30% projected cost savings over the contract life.
- Reactive maintenance costs reduced by over 40%, freeing resources for other priorities.

SUSTAINABILITY

- RHINOPHALT® supports a circular economy by extending asset life and minimizing waste.
- Fewer resurfacing cycles mean reduced raw material consumption and waste, as preservation avoids the need for new asphalt surface course.
- Aligns with sustainability goals and government carbon reduction targets.

temperatures and heatwaves.

- Extended service life with fewer major interventions: By strengthening and protecting the existing pavement, RHINOPHALT® reduces the need for carbon-intensive resurfacing and ensures the network remains structurally sound even as climate pressures increase.

ROAD USER SATISFACTION

Road user testimonials reflect the importance of surface quality and journey reliability - two areas where RHINOPHALT® delivers measurable benefits. This improvement is closely linked to the use of RHINOPHALT® asphalt preservation, which reduces the need for frequent resurfacing and emergency repairs.

By extending the life of the road surface, RHINOPHALT® helps avoid the long, disruptive closures that frustrate drivers. The M40 motorway has been voted England's best motorway by Transport Focus in 2022, 2024 and 2025 for road user satisfaction; based on improved surface quality, fewer delays and uninterrupted traffic flow.

EXTENDED PAVEMENT LIFE

Starting in 2008, the entire asphalt surface course was treated with RHINOPHALT® in five-year cycles - continuing until the handback to National Highways in 2026. The results speak for themselves: over 5.5 million m² of asphalt preserved, one full resurfacing avoided and more than 40% saved in reactive maintenance costs. Some sections of the original SMA are now over 26 years old - and still going strong.

WHOLE LIFE CARBON SAVINGS

By applying RHINOPHALT® across the full 123 km of the M40 motorway at five year intervals, UK Highways delivered a highly effective preservation strategy. Three targeted applications over the pavement's design life not only avoided the need for a full surface course replacement but also achieved 91% carbon savings compared to traditional resurfacing.

This provided substantial cost savings for the client and a major reduction in environmental impact, demonstrating a smarter, more sustainable approach to longterm motorway maintenance.

M40 preventative maintenance	3 x applications of RHINOPHALT	1 x complete asphalt surface course replacement
Total carbon, CO ₂ e/m ²	1,802,900	19,594,243

91% carbon saving