CASE STUDY

RETHINKING ROAD MAINTENANCE: SCALING SUSTAINABILITY WITHOUT COMPROMISE

KRATON™

London's M25 Motorway

When opened in 1986, the M25 became Europe's longest ring road at 188 km (117 mi). As traffic demands continued to grow, maintaining this critical motorway required an approach that could improve sustainability while preserving the durability expected from one of the UK's most important transportation corridors.

CHALLENGE

The M25 serves as a vital roadway for Greater London and must withstand continuous traffic demand while meeting increasing expectations for sustainable infrastructure practices. FM Conway recognized that traditional road maintenance approaches relied heavily on virgin materials, increasing demand on finite road-building resources. At the same time, pavement maintenance demands continued to increase across strategic transportation networks. The company sought a resurfacing solution that could significantly reduce dependence on new materials while maintaining the durability required for a major motorway. The challenge was to prove that a high-recycled content asphalt surface could deliver the same long-term performance expected from conventional solutions.

Partner: FM Conway, Toppesfield

Market: Paving

Product(s): HiMA™

Highlights

- Sought to reduce reliance on virgin road-building materials.
- Extensive laboratory testing validated performance before field application.
- Delivered sustainable infrastructure benefits without lowering performance standards.
- Demonstrated resource conservation while supporting long-term pavement performance.

50%

Recycled Asphalt

in surface mix

SOLUTION

Working in collaboration with Toppesfield, FM Conway developed a specially engineered asphalt mix for resurfacing a section of the M25. The design incorporated 50% recycled asphalt in the surface mix, significantly increasing recycled content compared with conventional surface treatments, which typically contain only up to 10% recycled material.
To support this elevated recycled content, the mixture used a bespoke premium polymer-modified bitumen (PMB). According to FM Conway, the PMB was selected to improve durability by increasing resistance to rutting and cracking. Prior to application on the motorway, the company conducted extensive laboratory testing to evaluate performance. Results demonstrated that the more sustainable formulation could achieve performance comparable to traditional surface treatments. Following validation, the solution was selected for use on the M25, providing a practical pathway to reducing virgin material consumption without compromising roadway performance.

IMPACT

The project became a significant milestone in road maintenance innovation. FM Conway's asphalt mix containing 50% recycled content was the first of its kind to be used on the UK strategic road network. In September 2019, the company applied the solution between junctions 25 and 26 of the M25, installing a 4.5 cm (1.8 in) surface layer. The project demonstrated that high recycled content asphalt can serve as a practical, performance-driven solution for critical infrastructure. It also showed that road maintenance strategies can conserve resources, support long-term pavement performance, and advance sustainability objectives without reducing standards.

CONCLUSION

The M25 project demonstrated that sustainability and performance do not need to be competing priorities. By developing and validating a resurfacing solution containing 50% recycled asphalt, FM Conway showed how infrastructure owners can make better use of limited resources while maintaining the performance expectations of strategic transportation networks.

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