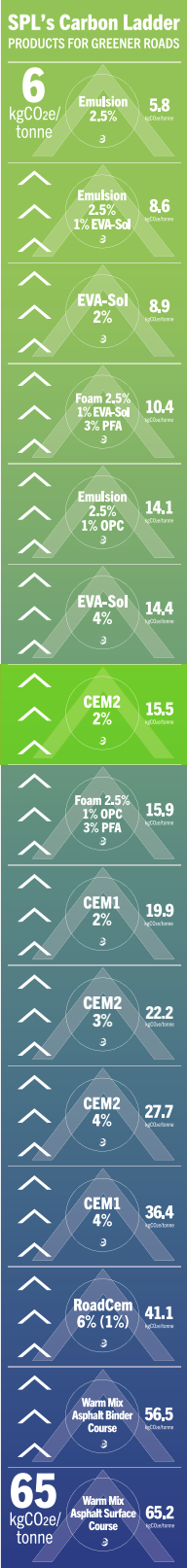


CASE STUDY

In-situ Recycling for Low-Carbon Highway Renewal



Scheme: Oakhill Road, Liverpool
Client: Dowhigh Ltd on behalf of Liverpool City Council and Adept Live Labs2
Date: April 2026
Area: 6,847 m²
In-Situ Process: In-situ Recycling with CEM 2 Binder Addition
Recycling Depth: 150mm
Surfacing: 50mm SMA
CO₂ Saving: 31 tonnes (41%)



Project Overview

As part of Liverpool City Council's commitment to sustainable and efficient highway maintenance, Dowhigh Ltd commissioned Stabilised Pavements Ltd (SPL) to undertake In-situ recycling works on Oakhill Road, Liverpool.

The objective was to structurally enhance the existing carriageway while significantly reducing environmental impact, programme duration, and disruption when compared to traditional reconstruction methods.

The project also contributed to Adept Live Labs2 objectives by demonstrating innovation in low-carbon maintenance techniques within a live operational environment.



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Recycling Methodology

SPL implemented its **In-situ Recycling process** across the full 6,847m² site, treating the existing pavement construction to a **depth of 150mm**. The process followed established In-situ recycling best practice, incorporating a **2% CEM 2** binder addition to improve strength, durability, and load distribution within the recycled layer. Existing carriageway materials were pulverised and re-engineered In-situ using specialist plant, removing the need for excavation, off-site disposal, or the import of virgin aggregate.



Engineering Performance and Material Re-Use

The CEM 2 binder was applied using a calibrated spreader and thoroughly mixed throughout the recycled layer to ensure consistent stabilisation. The material was then precisely shaped and compacted to form a strong and homogenous foundation layer, capable of accommodating future traffic demands.

This approach addressed historic defects within the existing pavement structure and extended the service life of the carriageway.



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Surfacing Operations and Safety Management

Surfacing operations progressed alongside the recycling works to minimise disruption and return the road to service quickly. A 50mm SMA wearing course was laid to provide a durable and skid-resistant finish.

Environmental and Commercial Benefits

Recycling existing materials In-situ significantly reduced the demand for new aggregates, quarrying, haulage, and waste disposal, resulting in lower embodied carbon when compared with full reconstruction.

The use of CEM 2 binder further supported carbon reduction goals while delivering required structural performance. The one-pass methodology also reduced construction time, traffic management requirements, and overall project cost.



Conclusion

The Oakhill Road scheme demonstrates the effectiveness of CEM 2 -stabilised In-situ recycling as a sustainable alternative to traditional highway reconstruction.

Through collaboration between Dowhigh Ltd, Liverpool City Council, Adept Live Labs2 and SPL, the project delivered a structurally robust, cost-effective, and environmentally responsible solution that supports long-term pavement performance and local authority sustainability objectives.



For more information on SPL's sustainable road solutions, contact:
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