The ultimate solution to reflective cracking and road surface deformation
The Highways Agency and Local Authorities spend millions of pounds on repair and maintenance work every year. Despite this, on difficult sites the same problems continue to recur, often within months of the work being completed. To meet this challenge Lafarge Tarmac has developed a high performance asphalt that solves two of the most persistent and costly problems to affect UK road maintenance.

**ULTIMATE SOLUTION**

Lafarge Tarmac ULTILAYER provides enhanced resistance to reflective cracking and road surface deformation.

A proven alternative to conventional bituminous road surfacing materials, ULTILAYER combines outstanding flexibility and strength to deliver long-term durability, even on the most difficult sites where conventional materials have failed.

“Traditional pavement design and materials were not viable options. We have achieved a high quality road pavement, which will provide long-term value for money.”

Rakesh Vaghela, Assistant Service Manager for Highways, Westminster City Council.
ULTIMATE SPEED
With ULTILAYER both the surface and binder courses can be replaced in a single pass, halving construction time.

ULTIMATE FLEXIBILITY
ULTILAYER’s improved flexibility makes it less susceptible to reflective cracking which is caused by ground movement.

ULTIMATE DURABILITY
Since ULTILAYER has higher binder content, and is typically used in thicker layer than conventional thin surface course, it offers excellent durability.

BENEFITS

No need for full depth construction
In most cases only the surface layer or the surface layer and binder course needs to be removed and replaced.

Faster construction time
The fewer layers that are removed, the quicker the job can be completed. Replacing two layers with one can substantially reduce the programme time.

Less disruption to road users
Faster construction times keep busy roads moving, minimising disruption and reducing congestion.

Lower construction costs
ULTILAYER is far more cost-effective than deep reconstruction and doesn’t require the use of expensive geotextiles.

Longer-lasting results
Very strong, yet highly flexible, it is able to withstand the pressure of constant heavy traffic and compensate for movement in underlying concrete layers and the ground beneath the road.

More sustainable
All Lafarge Tarmac products are manufactured in the UK and certified under BES 6001 Responsible Sourcing. ULTILAYER is also designed to be more durable than conventional materials making it a more sustainable long-term solution.

HOW IT WORKS

ULTILAYER contains a high performance Polymer Modified Binder (PMB), which is used in combination with carefully designed aggregate grading to provide an ultra-high performance asphalt.

Enhanced resistance to reflective cracking
Reflective cracking is caused by movement in underlying concrete layers, poor foundation or movement of the underlying ground. This is particularly a problem in evolved carriageways which were not designed to carry today’s heavy traffic loadings or where concrete has been overlaid with asphalt, but continues to move either through thermal movements or as a result of poor foundations. If left untreated reflective cracks can allow water into the pavement causing further weakening of the entire structure.

ULTILAYER is more flexible than conventional asphalt due to the elasticity of the PMB. As a result, the risk of reflective cracking damaging roads that have been resurfaced or reconstructed with ULTILAYER is significantly reduced.

Improved resistance to pavement deformation
Much of the UK’s aging road network was not built for today’s traffic volumes. Increased traffic levels, heavy loads and the use of super single tyres can cause rutting along the wheelpaths, increasing the risk of accidents for both road users and pedestrians.

ULTILAYER provides a stronger, more durable road surface, reducing the risk of deformation reoccurring.

ULTIMATE DURABILITY
Since ULTILAYER has higher binder content, and is typically used in thicker layer than conventional thin surface course, it offers excellent durability.
Typical applications
ULTILAYER has the same surface texture and profile as conventional asphalt, and performs equally well when it comes to noise minimisation, spray reduction and skid resistance. As a result it is suitable for a wide range of applications from residential streets, to heavily trafficked roads. ULTILAYER is only available for installation by our own contracting division who will carry out a full site survey to ensure you receive the most appropriate solution for your project.

<table>
<thead>
<tr>
<th>Material</th>
<th>Application</th>
<th>Texture Depth (mm)</th>
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</thead>
<tbody>
<tr>
<td>ULTILAYER 6</td>
<td>Low traffic volumes, housing estates, car parks</td>
<td>0.8 – 1.0</td>
</tr>
<tr>
<td>ULTILAYER 10</td>
<td>Higher traffic volumes, higher stress</td>
<td>1.0 – 1.2</td>
</tr>
<tr>
<td>ULTILAYER 14</td>
<td>Higher traffic volumes, higher speed, medium stress</td>
<td>1.2 – 1.4</td>
</tr>
<tr>
<td>ULTILAYER 20</td>
<td>Housing estates, deeper construction 100mm inlay alternative*</td>
<td>1.4 – 1.6</td>
</tr>
</tbody>
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*Thickness can be increased up to approximately 100mm, but caution should be taken with regard to ride quality and compaction.
Oxford and Regent Street, London

CHALLENGE
Severe rutting and cracking has been a persistent problem for many years due to a combination of very heavy bus trafficking and the poor condition of underlying lean concrete.

SOLUTION
After discussions with Westminster City Council, a 10mm ULTILAYER binder course and a 10mm ULTILAYER surface course were selected as an alternative to deeper reconstruction, which would have resulted in severe disruption in one of the busiest parts of the city.

RESULT
ULTILAYER has demonstrated excellent performance to date. Four years after it was laid there is no sign of deformation or surface cracking.

“A traditional pavement design and materials were not viable options. We have achieved a high quality road pavement, which will provide long-term value for money.”

Rakesh Vaghela, Assistant Service Manager for Highways, Westminster City Council.

Alderminster Road, Warwickshire

CHALLENGE
Reflective cracking is a persistent problem on roads across Warwickshire due to inherent underground movement, which is caused by high concentrations of clay in the natural substrate.

SOLUTION
Half of the contract utilised the traditional approach of 55/10 HRA S/C 100/150pen and the other half ULTILAYER. After three months, significant cracking was clearly visible in the HRA. The area surfaced with ULTILAYER showed no sign of fatigue.

RESULT
The use of ULTILAYER reduced voids and increased flexibility, reducing reflective cracking and improving durability.

Rakesh Vaghela, Assistant Service Manager for Highways, Westminster City Council.

EXPERIENCE

ULTIMATE CONFIDENCE

Coventry City Council has laid over 12,000 tonnes of ULTILAYER on sites across Warwickshire and Coventry.
ULTIMATE SUSTAINABILITY

Lafarge Tarmac is committed to providing construction materials and solutions that make a positive contribution to the built environment. By working closely with our customers, together we can reduce the environmental footprint of projects and deliver innovative, more sustainable solutions. We take a whole-life approach, addressing not only the extraction, manufacture and transport of our products but also consider their sustainable performance in use and opportunities for reuse and recycling at end of life. We use management systems certified to ISO 9001, ISO 14001 and OHSAS 18001 across our operations to continuously improve social, economic and environmental performance.

Our commitment to support our customers and provide sustainable solutions is further demonstrated by certification across our product range to BES 6001, the framework standard for Responsible Sourcing and the Achilles BuildingConfidence scheme.

- 100% of products have carbon footprint information
- 100% Reclaimed Asphalt Planing (RAP) recycled for use in new asphalt
- 2.9 million tonnes of secondary aggregates recovered from industry waste
- 1.5 million tonnes of high quality recycled aggregates each year
- 3.5 million tonnes of aggregates transported by rail
- 100% of quarries have biodiversity and restoration management plans
Combining industry-leading innovation and market-leading supply and distribution, together we offer an ultimate range of products and services:

**Aggregates** for concrete, asphalt and mortar production, sub-base construction, capping, drainage and landscaping.

**Asphalt and Contracting Services** for infrastructure, motorways, roads, car parks, footpaths, sports facilities, stadiums and runways.

**Readymix Concrete and Cement** for the construction of homes, power stations, water treatment works, freight depots, ports, office buildings and shopping malls.

**Lime and Powders** for water purification, soil stabilisation, land reclamation and the manufacture of iron and steel, plastics, glass, pharmaceuticals and animal feed.

Our solutions play a pivotal role in delivering the services on which we all rely. Fresh food on supermarket shelves. Clean water on tap. Electricity at the touch of a button. Maintaining these services is a big responsibility. And one that we don’t take lightly. We work closely with clients, contractors and partners across the supply chain to make sure that the solutions we deliver are not only practical and cost-effective, but also long-lasting and sustainable.

All of our products are responsibly sourced in accordance with BES 6001. Our asphalt and concrete mixes increasingly contain up to 50% recycled content, and we are the UK’s leading supplier of recycled construction materials. Delivering sustainable solutions is what our business is all about. It’s what we do. It’s what Britain’s built on.

**Lafarge Tarmac Contracting**

Lafarge Tarmac Contracting is the UK’s leading provider of road surfacing and highway maintenance services.

- 1,400 dedicated employees
- 31 area offices nationwide
- 6 regional maintenance depots
- 3.5 million tonnes of asphalt laid every year
- 500,000 tonnes of road planings recycled
- 70 recycling operations

In 2013, Lafarge and Tarmac joined forces to create the ultimate construction products solution provider. One company with one vision. Committed to safety. Dedicated to sustainability.
What is the difference between ULTILAYER and conventional asphalt?
ULTILAYER contains a high performance Polymer Modified Binder (PMB), which is used in combination with carefully designed aggregate grading to provide a dense, high binder content mix. This significantly improves both flexibility and durability.

How does it increase resistance to reflective cracking?
ULTILAYER’s improved flexibility means that it is less susceptible to cracking caused by movement in the ground beneath the foundation course.

Why does it decrease the risk of pavement deformation?
Carefully designed aggregate grading in combination with the Polymer Modified Binder provides very high rut resistance.

How does it reduce construction time?
In many cases ULTILAYER can be used as an alternative to full depth construction. One layer of ULTILAYER can be used to replace both the surface and binder course, which virtually halves the construction time.

What are the potential efficiency benefits?
For contractors, less time on site means lower labour and equipment costs, whilst their customers benefit from longer-lasting roads that require less maintenance.

How long will it last?
Every project is different. However, ULTILAYER has been proven on some of the UK’s busiest and most problematic roads, including Oxford Street in London where it has been in place for four years.

What technical support will I receive?
Lafarge Tarmac’s team of experts will carry out a full site survey and recommend the most appropriate course of action to meet your requirements and budget.

What are the sustainability benefits?
ULTILAYER is manufactured using responsibly sourced materials in accordance with BES 6001 standards. It is also produced at lower temperatures than conventional asphalt, saving energy and reducing carbon emissions.
Every solution starts with a challenge. Tell us yours at LAFARGETARMAC.COM