


# ULTILAYER

The ultimate solution to reflective  
cracking and road surface deformation

AVAILABLE WITH  
**ULTILOW**  
TECHNOLOGY

A photograph showing construction workers in high-visibility orange and green gear operating a machine on a road surface. The machine is a Tarmac UltiLow machine, used for applying reflective materials to road surfaces. The workers are standing on a concrete curb, and the machine is positioned on the road surface. The background shows a large, arched stone structure, possibly a tunnel entrance or a bridge. The scene is illuminated by bright sunlight, creating a strong lens flare effect.



**Tarmac UTILAYER provides enhanced resistance 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 Tarmac has developed a high performance asphalt that solves two of the most persistent and costly problems to affect UK road maintenance.

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

UTILAYER 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.

**ULTIMATE  
SOLUTIONS**

# ULTIMATE RESULTS

## 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.

## Lower construction costs

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

## Improved Durability on Roundabouts

10mm ULTILAYER has a proven record of use on heavily trafficked roundabouts to resist pavement deformation and premature wear. For more details on specific schemes, see the case studies on the Utilayer page of our website.

## 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.

## 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.

## Less disruption to road users

Faster construction times keep busy roads moving, minimising disruption and reducing congestion.

## More sustainable

All 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.

# PROVEN PERFORMANCE

## 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.

## 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 100/150open 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.

*“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 CONFIDENCE

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



## EXPERT ADVICE AND SUPPORT

No two roads are exactly the same. That's why our Tarmac experts personally inspect and diagnose every project. This enables us to recommend the ultimate solution to meet each client's exact requirements and budget.

### 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 accredited contractors who have full access to our expert training, advice and technical support or by our own expert Contracting division. This ensures it is laid to the highest industry standards.

ULTILAYER is also available with ULTILOW binder technology, for improved sustainability, better on-site visibility, shorter programme times and earlier reopening to traffic. Ask your local Tarmac representative for details.

Material	Application	Texture Depth (mm)
ULTILAYER 6	Low traffic volumes, housing estates, car parks	0.8 - 1.0
ULTILAYER 10	Higher traffic volumes, higher stress	1.0 - 1.2
ULTILAYER 14	Higher traffic volumes, higher speed, medium stress	1.2 - 1.4
ULTILAYER 20	Housing estates, deeper construction 100mm inlay alternative*	1.4 - 1.6

\*Thickness can be increased up to approximately 100mm, but caution should be taken with regard to ride quality and compaction.

## OUR SUPPORT

### FAQs

#### *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.

#### *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 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.

#### *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.

#### *Why does it reduce the risk of pavement deformation?*

Carefully designed aggregate grading in combination with the Polymer Modified Binder provides very high rut resistance.

#### *What technical support will I receive?*

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.

#### *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 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.



## MORE ANSWERS

For more information about Tarmac ULTILAYER contact your local regional office or visit [tarmac.com](http://tarmac.com)

For all Tarmac Contracting enquiries contact:

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