



Science.
Applied to Life.™

A long-exposure photograph of a city skyline at night. The foreground shows a multi-lane highway with bright, curved light trails from cars, suggesting motion. The background features several illuminated skyscrapers against a dark sky. The bottom half of the image is overlaid with a dark blue geometric shape.

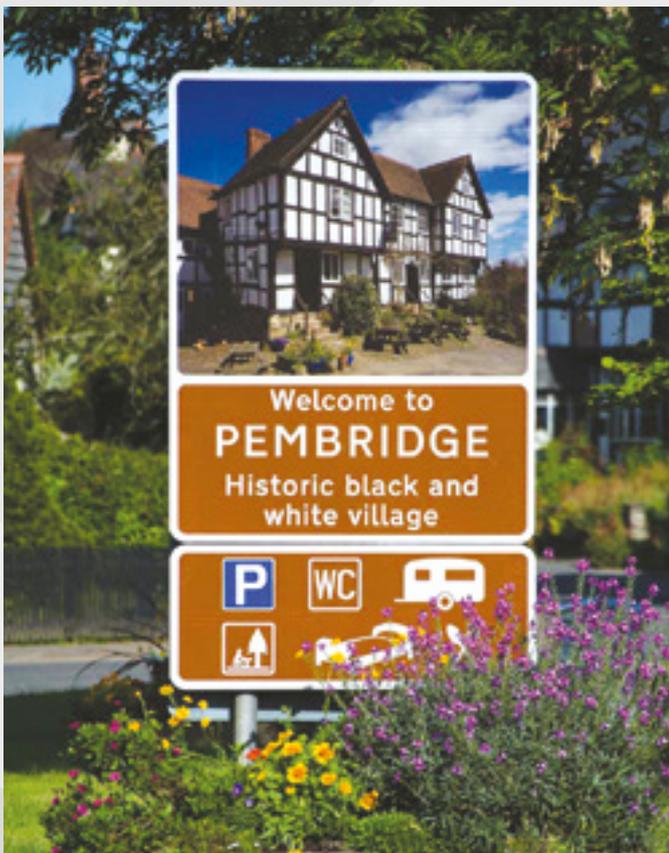
3M Traffic Sign Sheeting Solutions

Between 2013 and 2014 there was a four percent increase in the total number of roadway fatalities in the UK, fuelling the need to improve road safety.¹

The number of road fatalities had been on a downward trend over the previous 10 years², this increase highlights the need to re-focus on improving road safety.³

Studies conducted by the Department for Transport show that some of the factors contributing to road traffic accidents include inadequate and obscured signs, impaired driver vision due to external factors such as buildings, road signs and street furniture.

Through the installation of highly visible and effective road traffic signs we can help minimise these contributors to road accidents by keeping drivers informed and aware of hazards, helping them to arrive at their destinations safely.





There are over 30 million drivers on the road in the UK today⁴

This number is likely set to increase in coming years, with the population expected to grow. The Department for Transport estimates traffic on the strategic road network will increase 43% by 2040.⁵ More drivers on the road means increased risk, and with this comes a duty of care to do everything necessary to keep the road network as safe as possible.

40 per cent of collisions occur in the hours of darkness

According to research by the Department for Transport, road casualty statistics show that 40 per cent of collisions occur during the hours of darkness. This is despite the majority of traffic being active during the day.⁶

Effective, visible traffic signs are vital in keeping road users safe, especially at night or in poor weather conditions. Traffic signs need to look great and perform brilliantly in all installations. The 3M™ range of microprismatic retro-reflective sheeting provides outstanding performance with proven durability that can be relied on for many years.

The ageing population

The ageing population in the UK brings more challenges to road safety than ever before. Older drivers may experience slower reaction times compared to other drivers, a loss of visual accuracy and difficulties in colour perception.⁷ With this reduced ability to read traffic signs and react in time, road signs need to be as visible, clear and legible as possible. Traffic signs made with 3M reflective sheeting are easy to read due to excellent colour contrast, enhanced brightness day and night, and impressive visibility in all weather conditions. How well signs are seen dictates how drivers react. That's why the brightness and clarity of our range of traffic sign sheeting is so important.



¹ National Statistics: Reported road casualties in Great Britain: main results 2014

² Annual road fatalities, GOV.UK, 2014

³ Department for Transport. Contributory factors to reported road accidents 2014/2011

⁴ National Statistics: National population projections

⁵ Department for Transport. Road Investment Strategy for the 2015/16 – 2019/20 Road Period

⁶ Reported road casualties 2010, DfT

⁷ European Union Road Federation: Improved Signage for Better Roads

Solution



The right solution for the situation

In order to serve as many drivers as possible, it is important to consider the environment in which the traffic sign will be placed. This will help determine which class of sheeting is the most appropriate.

Our High Intensity Prismatic sheeting is a great choice for the majority of your traffic sign solution needs. Bright, legible signs provide drivers with clear direction. In complex or confusing visual situations such as heavily lit areas or signs on overhead gantries, a higher performing material such as Diamond Grade™ DG³ may be required. By returning more light to the driver Diamond Grade DG³ helps traffic signs be more clearly seen.

The eye line of HGV or lorry drivers sits well above the vehicles headlights, resulting in less light being reflected back. This means they may find it harder to read a road sign compared to other road users. In order for a traffic sign to return light to these disadvantaged drivers, the most optically efficient reflective sheeting system should be used. Diamond Grade DG³ Reflective Sheeting uses full corner cube technology to reflect increased levels of light back to the driver even at acute angles. This reflective efficiency makes traffic signs stand out even for disadvantaged drivers. See the Diamond Grade DG³ product information overleaf for more information.

Cost effectiveness

With increasingly constrained budgets, traffic sign solutions need to be as cost efficient as possible.

Traffic signs need to be durable enough to perform at the desired levels for many years. 3M signage solutions provide a stunning return on investment, with up to 12 years warranted performance on permanent traffic signs, sign replacement and disposal costs are minimised.

Lighting a road sign is a costly expense that requires installation, provision of power and on-going maintenance of electricals. Where regulations allow, 3M's Diamond Grade DG³ reflective sheeting can be an effective alternative. Almost 100 percent optically efficient, the improved light return to the driver makes the traffic sign clear and visible at a fraction of the long term cost of an externally lit sign.



Traffic flow and congestion

Road work zones can be confusing and often navigating through them is a challenge. Traffic needs to be kept moving as efficiently and safely as possible. Clear signage informs drivers of what is happening, where they should be and where they need to go.

The brightness, legibility, colour contrast, and high performance of 3M traffic sign sheeting used in permanent applications is just as applicable for temporary signs to stand out against the confusion of road works. The 3M product range is a safe option to keep traffic flowing and safe.

For maximum impact from temporary signing 3M Diamond Grade Fluorescent DG³ Reflective Sheeting is a superior option. Fluorescent sheeting is perfect for highlighting specific hazards, especially in the constantly changing environment of ongoing road works, providing outstanding reflectivity at relevant viewing distances, in all weather and daylight conditions.

Solution



Vandalism

Traffic signs can be at risk of vandalism from graffiti and stickers. This results in the sign being difficult or impossible to read making it dangerous for road users and costly for authorities to maintain.

To keep signs clear, keep costs down and focus on road safety, 3M's protective overlay films are designed to shield traffic signs from both graffiti and stickers, helping to prolong the life of the sign and keep them visible. See the overlay films product information section for more information.



Peace of mind

Traffic sign manufacture can be complicated and requires expertise.

Our local technical specialists can provide support for all aspects related to the 3M traffic sign solution, this includes queries related to CE marking and the British standard that governs traffic signs BS EN 12899-1:2007.

3M is committed to providing innovative safety solutions designed to maximise visibility and safety on the road. As part of this commitment the 3M extended warranty applies to all permanent traffic signs produced through our network of Approved Sign makers.

We are so confident in the durability, longevity and performance of our reflective sheeting products that should a qualified sign fail during the warranty period 3M will meet the total cost of replacing the sign, including removal and installation costs. See our warranty schedule overleaf for further details.

We are committed to protecting the environment, our 3M prismatic sheeting releases 97 percent less toxic volatile organic compounds during the manufacturing process compared to beaded sheeting alternatives. In addition we have reduced energy consumption by 77 percent and solid waste by 46 percent.

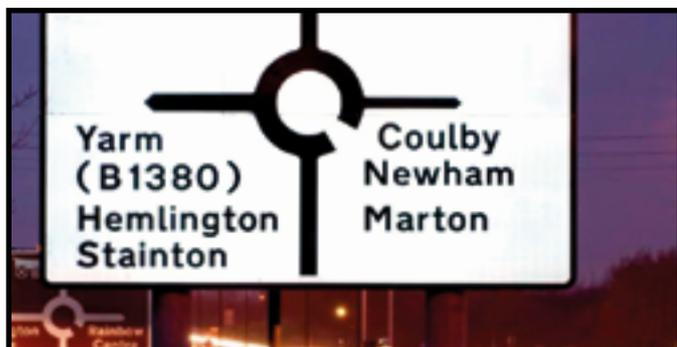
Credible sign converters

Aside from choosing the right retroreflective sheeting we also need to ensure the traffic signs you use comply with relevant standards and regulations. Sign makers need to be reliable, credible and reputable.

Our 3M Approved sign makers provide the benefits of the 3M Extended Warranty for permanent traffic signs to their customers. Our network of Approved sign makers are audited and accredited annually by 3M technical service specialists.

Product Range

Diamond Grade DG³ Reflective Sheeting



- ▶ Microprismatic reflective sheeting that uses full cube corner optics to provide superb optical efficiency even at acute angles
- ▶ Complies with performance requirements BS EN 12899-1:2007 classes R3A and R3B
- ▶ CE marked
- ▶ 12 year warranty
- ▶ Full range of traffic colours

High Intensity Prismatic Reflective Sheeting



- ▶ Microprismatic reflective sheeting
- ▶ Complies with performance requirements of BS EN 12899-1:2007 class RA2/R2
- ▶ CE marked
- ▶ 12 year warranty
- ▶ Full range of traffic colours

Advanced Engineer Grade Prismatic Reflective Sheeting



- ▶ Non-metallised microprismatic sheeting
- ▶ Complies with performance requirements of BS EN 12899-1:2007 class RA1
- ▶ CE marked
- ▶ 7 year warranty

Overlay Films



- ▶ 3M ElectroCut Overlay Film is available in a full range of traffic colours.
- ▶ 3M 1150 and 1160 series overlay films are solvent resistant designed to shield traffic signs from the effects of dirt and graffiti. 1160 also enables the easy removal of stickers

3M schedule for extended warranty statement for permanent signage

Base/Background Sheeting		Extended Warranty Period*		
Applicable Standards and Classes of Retroreflective Sheeting	Compliant 3M Retroreflective Sheeting	3M Approved Symbols & Graphics	Warranted Vertical Outdoor Exposure	Warranted Retained Luminance (CIL/m ² Percentile)*
BS EN 12899-1 Classes R3A & R3B	3M™ Diamond Grade™ DG ³ Reflective Sheeting Series 4000 (non-fluorescent colours)	3M™ Electrocut™ Film Series 1170	12 years	80%
		3M™ Screen Process Colours Series 880i		
		3M™ Piezo Ink Jet Series 8800UV		
	3M™ Diamond Grade™ DG ³ Reflective Sheeting Series 4081 Fluorescent Yellow, 4083 Fluorescent Yellow/Green & 4084 Fluorescent Orange	3M™ Electrocut™ Film Series 1170	10 years	
		3M™ Screen Process Colours Series 880i		
		3M™ Piezo Ink Jet Series 8800UV		
BS EN 12899-1 Class R2	3M™ High Intensity Prismatic™ Reflective Sheeting Series 3930	3M™ Electrocut™ Film Series 1170	12 years	70%
		3M™ Screen Process Colours Series 880i		
		3M™ Piezo Ink Jet Series 8800UV		
BS EN 12899-1 Class RA1	3M™ Advanced Engineer Grade Prismatic Reflective Sheeting 7930 Series	3M™ Electrocut™ Film Series 1140	7 years	
		3M™ Screen Process Colours Series 880i		
		3M™ Piezo Ink Jet Series 8800UV		

*Warranty period starts from date of installation

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