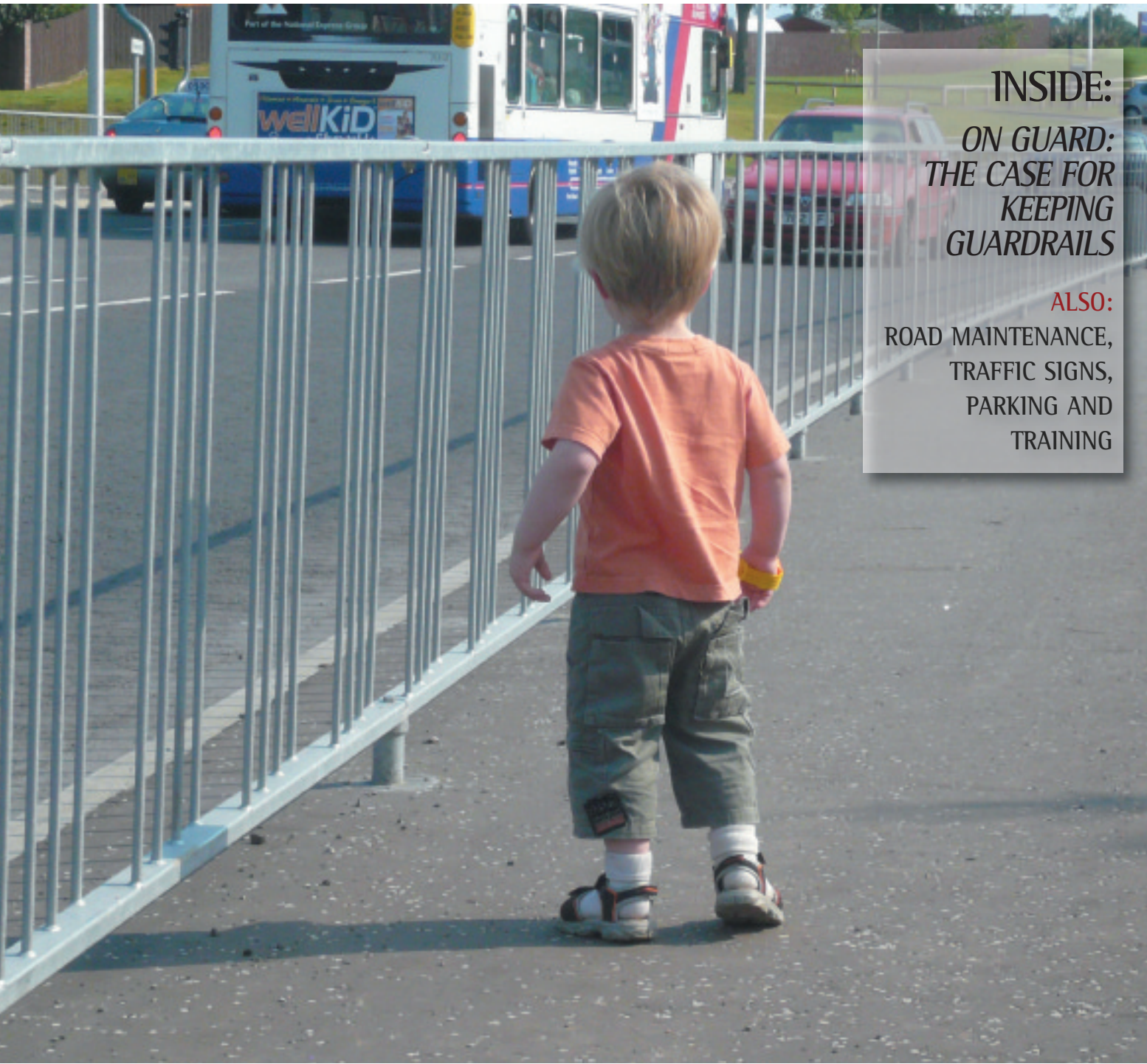


# HIGHWAYS

THE **ONE** AND ONLY MAGAZINE DEDICATED TO THE HIGHWAY MAINTENANCE AND TRAFFIC MANAGEMENT INDUSTRY



**INSIDE:**

*ON GUARD:  
THE CASE FOR  
KEEPING  
GUARDRAILS*

**ALSO:**

ROAD MAINTENANCE,  
TRAFFIC SIGNS,  
PARKING AND  
TRAINING

01/02 10

[WWW.HIGHWAYS-MAG.CO.UK](http://WWW.HIGHWAYS-MAG.CO.UK)

# Stay on guard to protect pedestrians from traffic

Once a key weapon in the battle to protect pedestrians from traffic, pedestrian guardrails have become unfashionable with architects and planners promoting "shared space" streets. What effect would removing them have on safety? Road safety consultant Dr. Doug Stewart presents evidence that pedestrian casualties would escalate.



Typical basic guardrail in London. Effective in curbing diagonal crossing, but poor visibility halves casualty savings for pedestrians.

**Boris Johnson has high ambitions for London. The Mayor's new Transport Strategy seeks to make it "...the best big city on earth..." with "...a world reputation for new and improved public spaces..." A splendid ambition.**

To that end, his Transport Strategy proposes "Enhancing pavement space for pedestrians and removing guardrails and other obstacles", another worthy aim, because we all dislike congested pavements. But Proposal 59f prompts two questions:-

The first one - how much

guardrailing would be removed - is answered by Transport for London's Guardrail Removal Programme, which states, "it is proposed that the programme be expedited with a view to remove 60km of guardrail by the end of July 2010".

The second question, therefore, is why guardrails have become so undesirable that the Mayor intends to remove a third of them from London. Guardrailing is usually installed to improve safety, so surely removing it will have the opposite effect. The Transport Strategy is more concerned, however, with "...detrimental effect on

the built environment, for example, traffic engineering to separate pedestrians from traffic for perceived safety reasons..." In other words, priority has shifted from safety to architecture, from guardrails to "shared space", the concept of creating "naked streets" where pedestrians and traffic mix without regulation or restraint such as guardrails.

Boris Johnson may have become enamoured with shared space through the highly publicised Kensington High Street scheme, whose purpose was to "improve the quality of the public realm" rather than to reduce accidents. 715 m of guardrailing was removed, and replaced by a token 60 m of steel guardrail, based on 1930's open guardrail that did not reduce accidents, as a concession to road safety.

The statutory Safety Audit for the scheme advised that removing guardrails "did not accord with Department for Transport design practice", but the shared space bandwagon had built up too much momentum to stop, posing a problem. An excellent report by the London Road Safety Unit (ATWP 77, The Effects on Accidents of the Erection of Guardrail") demonstrates that even guardrails obstructing visibility, like those on Kensington High Street,

continued on page 25

continued from page 22

reduce pedestrian accidents by 27%, so their removal would increase them by 37%, i.e.  $(100 \times 27) \div (100 - 27)$ .

Faced with this dilemma, the local council took out indemnity insurance, but did not have to invoke it. Not because the calamity was averted, but because it was never disclosed. The road safety report after completion of the scheme presented only the overall change in accident rate, not changes due to individual measures such as high-friction surfacing, more pedestrian crossings, and better street lighting. Hence, the detrimental effect of guardrail removal was buried in the global figure and the official Road Safety report could boast that "...the innovative approach to design and layout...has not had an adverse effect on safety..."

That statement is, of course, the premise of shared space - that even if it increases risk, people will be more careful and accidents will not increase. This is simplistic nonsense, which can apply in some situations, like failure of traffic signals, but not in others where risk is not obvious, such as absence of guardrailing.

With some difficulty, I obtained accident data for the scheme, which enabled comparison of sections of Kensington High Street that initially had guardrailing with those that did not. As I expected,

there was significantly less improvement where guardrails had been removed, the difference indicating a 31% increase in pedestrian accidents due to elimination of guardrails.

Informing the Borough Council of this analysis, I suggested that "... it seems highly desirable to release updated accident statistics for Kensington High Street, correctly evaluated to show the increase in accidents due to removal of guardrails..." Not surprisingly, perhaps, such a correction was never issued, and anti-guardrail prejudice intensified. To counter it, a reliable estimate of damage from wide scale removal of guardrails could be deduced from guardrail report ATWP 77, whose impartial statistics have been invaluable for testing several aspects of guardrail design and performance, notably the crucial effects of visibility and diagonal crossing.

Unpublished data from ATWP 77 confirms that the 16 study sites in 13 London boroughs had a statistically significant reduction of 19.3 pedestrian casualties per year after installing 1140m of guardrails. If these guardrails were removed, therefore, an increase of 19.3 pedestrian casualties could be expected, so the 60km removal proposed by the Transport Strategy could cause more than 1000 pedestrian casualties per year - food for thought for Boris Johnson and his lawyers.



Stabilised Pavements Ltd

- ▶ **Stabilread**  
Retread
- ▶ **Stabilcourse**  
Deep recycling
- ▶ **Stabilhaunch**  
Haunch recycling
- ▶ **Stabilsoil**  
Soil Stabilisation



Stabilised Pavements Ltd  
 PO Box 6909, Lutterworth  
 Leicestershire, LE17 4WW  
 T: 01858 880499 F: 01858 881336  
 E: info@stabilisedpavements.co.uk  
[www.roadrecycling.co.uk](http://www.roadrecycling.co.uk)

That prediction may appear unduly pessimistic to those unfamiliar with the results of guardrail research, but could readily be tested by applying the methodology of ATWP 77 – comparison of accident rates before and after change in guardrailing. Sufficient guardrails may already have been removed in London to do so, which merits the highest priority to forestall the immense damage that the Mayor's proposal and its emulation by other councils could cause.

That damage would be even larger if modern, high-visibility guardrails are removed, because they provide twice the accident savings of older guardrails such as those in ATWP 77 and on Kensington High Street. High-visibility guardrails are now the only type specified in TfL's Palette of Materials, and their superior performance provides a simple answer to the dilemma faced by Kensington's councillors, and now by Boris Johnson.

Instead of spending about

£3,000,000 to remove 60 km of guardrails and risk injuring or killing about 1000 pedestrians, similar expenditure to replace them by high-visibility guardrails would have the opposite effect. Pedestrian casualty rate would decrease by about 1000 per year, and vehicle occupant casualties by even more, according to research on guardrail visibility.

Of course, Transport for London and the Department for Transport have issued complex assessment guidelines for removing or installing guardrailing. They are, however, strongly biased towards the cosmetics of shared space. With no basis from before and after testing, and taking little account of current knowledge about guardrail performance, the guidelines are so unrelated to the causation and prevention of accidents that they are liable to increase pedestrian casualties, not reduce them.

Fortunately, obtaining maximum safety benefit from guardrailing is not difficult. It is necessary only to

identify locations where pedestrian accidents occur, and install high-visibility guardrails on both sides of the street at crossing points, preferably in lengths of not less than 20 m to minimise diagonal crossing, a factor in most pedestrian accidents. Doing so can be expected to reduce pedestrian casualties by about 80%, with exceptional economic returns, far in excess of 1000% per year, based on comparison of DfT's accident costings with the cost of installing Visiflex high-visibility guardrail.

The term "high-visibility" requires clarification, however, because it tends to be misused. To ensure good, long-range visibility for drivers it should refer only to guardrails whose transparency exceeds 70% at a viewing angle of not more than 60, a specification that should be mandatory because it provides major safety benefit for minimal extra cost. This standard of visibility was originally provided only by Visirail when I designed it over 30 years ago, but after expiry of its patent the design became freely available to any manufacturer, so several similar guardrails are now marketed. Visirail itself has been superseded by Visiflex, a guardrail with markedly enhanced performance, appearance and economy.

More and better guardrails may not be what Boris Johnson and Transport for London had in mind for "enhancing pavement space for pedestrians", nor may they be popular with protagonists of shared space. But protecting pedestrians is more important than street fashion. High-visibility guardrailing is probably the most effective and economical way to do so.



A modern high-visibility guardrail, Visiflex, in Camden. Diagonal crossing is discouraged without loss of visibility