



**Creating** the future of transport

# **TRL RESEARCH ALERT**

## **SUMMARIES OF TRL PUBLICATIONS**

**March 2013**

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**PPR492** [Further studies of the skid resistance of asphalt surfaces in their early life](#)

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**PPR493** [Early life skid resistance - an assessment of accident risk \(2003-2006\)](#)

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**PPR648** [Review of the guide to improving school transport safety](#)

R Hutchins and N Kinnear

#### ***Please note:***

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### ***Further studies of the skid resistance of asphalt surfaces in their early life***

For some years it has been known that new asphalt surfacings have different skid resistance properties to surfaces that have been in service for some time. This is believed to be due to the presence of a film of bitumen binder on the new surface that is eventually removed by weathering and traffic. New types of surfacing introduced since the mid 1990s led to concerns that the risk of early-life skid resistance problems, and the time that any effects last, may have increased. Research identified physical phenomena that might lead to an increase in accident risk in some circumstances, and a subsequent accident analysis found that there was some evidence of a small increase in slight injury accidents in the first few months after laying a new surface on some types of road but that these occurred in low-risk areas and were accompanied by a significant reduction in fatal accidents. This report provides the results of a study to investigate further the physical phenomena associated with the early life condition of new asphalt. Friction measurements were undertaken on a number of trial sites and in-service roads to investigate the development of skid resistance with time and traffic, to compare the early life effects on different types of asphalt surfacings, to study the effect of temperature on skid resistance and the effects of gritting new asphalt surfaces.

Author	M J Greene, P D Sanders and P G Roe	Pages	49
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### ***Early life skid resistance - an assessment of accident risk (2003-2006)***

For some years it has been known that new asphalt surfacings have different skid resistance properties to surfaces that have been in service for some time. This is believed to be due to the presence of a film of bitumen binder on the new surface that is eventually removed by weathering and traffic. New types of surfacing introduced since the mid 1990s led to concerns that the risk of early-life skid resistance problems, and the time that any effects last, may have increased. Research identified physical phenomena that might lead to an increase in accident risk in some circumstances, and a subsequent accident analysis found that there was some evidence of a small increase in slight injury accidents in the first few months after laying a new surface on some types of road, but that these occurred in low-risk areas and were accompanied by a significant reduction in fatal accidents. Following on from those earlier studies, work has continued to investigate further the physical phenomena associated with the early life condition of new asphalt and to undertake a further accident analysis. This report provides an update to the initial accident analysis reported in PPR205 and includes sections of the HA network that were resurfaced between 2003 and 2006. The results for thin surfacings from this accident analysis are consistent with those reported in PPR205, which covered resurfacing works between 2001 and 2004, although the percentage changes are slightly lower than those reported in the previous study. The findings are also generally consistent with the physical phenomena that have been measured on new asphalt surfacings.

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### ***Long-term damage to roads caused by utility reinstatements***

This report describes a study for the Scottish Road Works Commissioner (SRWC) to collect information on the potential for utility reinstatement works to cause long-term damage to roads. The aim of the study is to collect data that provides evidence of the impact that utility reinstatements have on the serviceable life of a road. It is intended that this evidence base will be used to determine potential contributions from utility companies to the costs of making good long-term damage to roads caused by their works. A revised version of the TRL Inspection Panel Methodology for surfacings was applied to 127 reinstatements located in four different council areas representing rural, semi urban, urban and city environments. All sites contained reinstatements that had been shown to comply with the Specification for the Reinstatement of Openings in Roads (SROR, 2003). Reinstatements ranged in age from between two and ten years. The surveys were undertaken to document the condition of utility reinstatements and their effect on adjacent carriageway pavements. The mean visual condition marks for the sites were analysed and attempts were made to fit linear regression lines, or deterioration trends, to the data. The report provides evidence that utility reinstatements do cause long-term damage to roads. The report also recommends that greater care and supervision is needed in the construction of reinstatement edge joints and suggests a change of detail that would make improvements to joints in the future.

Author M J McHale  
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### ***Climate Change and Landslide Hazard and Risk - A Scottish Perspective***

Although the UK is a relatively low-risk environment where landslides are concerned such events do have important socio-economic impacts and fatalities do occur. This report considers the potential for landslide events in Scotland in the light of future climate change. In particular, the UKCIP02 and UKCP09 climate change forecasts, current climate data and recent trends in Scotland's climate are discussed to obtain a clear picture of recent, current and likely future trends. The outcomes from this analysis are then reconciled with a view of likely future landslide hazard trends and a picture of potential future landslide risk in Scotland is presented.

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### ***Review of the guide to improving school transport safety***

"A Guide to Improving School Transport Safety" and an accompanying report were published by Transport Scotland and SCOTS in December 2010. This report details a review of these documents. The review involved a TRL researcher conducting telephone interviews with representatives from 31 of the 32 councils in Scotland in order to answer several key research questions about how the guide and report have been used (if at all) since their publication. Interviews were undertaken by the same researcher using a standardised structured topic guide to ensure consistency of approach. All interviews were recorded and transcribed prior to analysis. The data were analysed using thematic content

analysis, which involved identifying key themes emerging from the data. These themes are presented with illustrative quotes from interview respondents. The qualitative data analysis provided an in-depth understanding of how the guide was perceived and used, how it could be improved, which recommendations were most and least useful and whether the guide had prompted or led to the implementation of policy. In addition, local authorities were asked to report on the use of school bus signs and to indicate their interest in a workshop.

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