

**THE NOTTINGHAM ASPHALT RESEARCH CONSORTIUM
AND
THE UNIVERSITY OF NOTTINGHAM**

DRAFT AGENDA:

Condition Monitoring and Structural Investigation

17 June 2010

9:45 – Registration & coffee

Morning session

10:15 Chairman’s welcome, Ric Elliott

10:20 “Assessing Pavement Condition & Performance with SCANNER and DVI/CVI”
Peter King, Halcrow

10:50 “Pavement Assessment Techniques, Data Analysis and Interpretation”
Martyn Stonecliffe-Jones, Jacobs

11:20 – Coffee

11:50 “Asset Managers and Collision Investigators: A marriage made in Heaven or Hell?”
Dr John Bullas, Atkins

12:20 – Lunch

Afternoon session

13:30 “Rational Pavement Rehabilitation”
Alistair Hunter, Scott Wilson

14:00 “A New Approach to the Use of GPR Data in Network Management”
Will Throssel, Fugro-Aperio

14:30 Traffic Speed Deflectograph
Pete Langdale, TRL

15:00 - Close

Assessing Pavement Condition & Performance with SCANNER and DVI/CVI, Peter King, Halcrow

The accreditation procedures for Detailed Visual Inspection, and Coarse Visual Inspection (DVI/CVI), and the introduction of SCANNER surveys were completed a few years ago. In comparison with the initial flurry of activity there has been a slight lull in progress with pavement condition surveys. During this time contractors have continued to develop technology in survey machines, and after a trial period, details of the new Footway Network Survey (FNS) are being made available.

Following the introduction of SCANNER and the Road Condition Index (RCI) there were calls for a period of “stability”. Whilst it was probably prudent not to interfere too much with the RCI (for all its faults) to ensure there would be comparability from year to year, an opportunity may be being lost in advancing our use of the wealth of data with which we were so suddenly presented. Turning survey data into useful information takes time and resource; there is a learning curve that many authorities may not be able to accommodate. We need to find smarter ways of sharing expertise, and using data. Even with only a few year’s experience there is the opportunity to examine what information is available, and how well we have, and could, use it.

With the advances in survey technology, and improvements to pavement management systems, there is a tendency to rely on computing power to provide detailed solutions. However, it is unlikely we will ever truly see plug-and-play pavement maintenance. Indeed it may be a grail not worth the effort of pursuing. In assessing survey techniques and survey data we should not underestimate engineering knowledge and experience. The trick will be deciding on where to draw the line between technology and innovation, and engineering intervention and experience.

Pavement Assessment Techniques, Data Analysis and Interpretation, Martyn Stonecliffe-Jones, Jacobs

There are a number of survey techniques currently used in the UK at present and these range from sophisticated machine surveys that use precise measuring equipment to the labour intensive manual techniques that rely on skilled survey operatives. Each method can provide information that is of equal importance if surveyed at the right time and used in the appropriate way. Good asset managers know what surveys to use on a routine basis and when to carry out the more detailed investigations in potentially problematic locations to enable the right treatment to be planned at the right time. When managed correctly, significant cost savings can be achieved whilst minimising user disruption and retaining the asset value.

The analysis of the survey information is a key stage in taking the survey data and manipulating it in such a way that it will enable the engineer to make the most appropriate decision. The best way to plan a treatment intervention is to understand what has caused the pavement to deteriorate in the first instance rather than focusing on the effect of the deterioration. By targeting the cause rather than the effect it is more likely that the problem will not re-occur repeatedly, resulting in a poor whole life cost and increased user disruption.

The aim of this presentation is to show what types of survey techniques are available and the most appropriate times to use these. The methods of analysis will then be discussed along with the interpretation of the results. To conclude, there will be an overview of future survey techniques and how these may change the way we assess pavements.

Asset Managers and Collision Investigators: a marriage made in Heaven or Hell?, Dr John Bullas, Atkins

Asset Managers seek to empower themselves with a comprehensive knowledge of the state of their network and how that network is likely to change over time in order to best schedule maintenance and reconstruction activities against ever restricted budgets. One critical aspect of this is an understanding of the performance of the network in terms of skidding resistance.

The very nature of asset management requires the collection and interpretation of skid resistance data in a form which “irons out” known seasonal variations and any other sources of error likely to blur the measured “now” condition and the predicted future condition.

The characteristics of a location that are likely to play a role in a road traffic accident are very much related to the “now” condition of the pavement measured on an hour or minute scale. It is very unlikely that the information collected, for asset management purposes, at the scene of a crash will be of great value to the collision investigator (unless it relates to a relatively invariable property of the fixed asset and that this data can be shown to be a true reflection of the scene at the time).

If the road was dry at the time of the RTA, SCRIM, GRIPTESTER or other wet friction data would be of little value!

We must consider that “Now” is not the average of an average over the last three years or more.

Driving a police car down a road and then slamming on the brakes is surprisingly informative though it appears poorly controlled in relation to the manner in which the MSSC or LESC is recorded over several hundreds kilometres using SCRIM.

Rational Pavement Rehabilitation, Alistair Hunter, Scott Wilson

Structural overlays and inlays form a significant component of the pavement works undertaken within the UK and have an impact in terms of cost and road user delay. Currently, there is no structured and consistent method outlined for evaluating whether structural pavement treatment is required and if so, then defining the treatment required. A recent review of lead design consultancies has revealed significant differences in their approach to this subject. On behalf of the Highways Agency, Scott Wilson has developed a consistent method of calculating the required thickness of overlay and inlay treatments for determinate life fully flexible pavements based on good practice and consistent with the concept of optimising whole life costs.

The methodology will be provided to Agents to aid the preparation of their Value Management submissions and is aligned to the investigation and assessment process detailed in HD29/08 and HD30/08, and the design philosophy for new pavements detailed in HD26/06 and pavement foundations in IAN 73 (draft HD25). The methodology is also applicable to Local Authority networks.

A New Approach to the Use of GPR Data in Network Management, Will Throssel, Fugro-Aperio

The United States has a road network of about 6.4m carriageway kilometres which, in the financial year 2006/07, had over US\$140billion spent on it. In these tough financial times state transport agencies are turning to innovative new approaches to network level data collection to make every cent of investment count.

Fugro annually collect and process approximately 250,000km of network data for state transport agencies. In a new approach Fugro are collecting 81,000km of traffic speed Ground Penetrating Radar from the highway network of one state. The aim of this work is to split the state network up into fixed segments based on construction type and material thickness. These fixed segments will be used as the baseline reference for a new Pavement Management System. Once populated, the PMS will compare annual pavement condition data on a fixed rather than dynamic network segmentation model. By tying the pavement condition back to the pavement construction, the state believe that they will be able to better understand the results of the condition surveys and therefore make more efficient use of their future maintenance budgets.

Traffic Speed Deflectograph, Pete Langdale, TRL

The Highways Agency has a responsibility to provide a safe and serviceable network. At present the TRACS contract delivers results of machine surveys of surface condition of the pavement across the network, operating at the speed of traffic. Since routine Deflectograph surveys to record structural pavement condition ceased in 2000, TRL has been carrying out research into traffic speed machine surveys to measure deflection at a network level. A research machine was acquired in 2005 and the concept of traffic speed deflection surveys was launched by the Minister in June 2006. The Highways Agency is now committed to the delivery of network level structural condition surveys in 2010.

This presentation will update delegates on the recent developments of the TSD, discuss the procurement strategy to deliver the surveys and provide an insight into the ongoing research regarding analysis of the TSD data. The presentation will also discuss the Highways Agency's future structural assessment strategy.