Pavement condition from intelligent pavements and intelligent vehicles

The principle

The efficient operation and maintenance of the road network relies on the availability of accurate and up to date information on pavement condition. As traffic levels continue to increase, it has become essential that the acquisition of this information be made with little or no disruption to traffic flow.

The rationale

The INTRO research strand focusing on «pavement condition from intelligent pavements and intelligent vehicles» aims to provide new methods of predicting the deterioration process and condition of pavements and structures in unobtrusive ways, and make this information accessible at low cost. The long-term benefits provided by this work will be the effective targeting of road maintenance, resulting in reduced traffic disruption, increased accessibility, reduced accidents and better value for money. Further benefits include increased effectiveness of current measurements, improved identification of defects, and hence reduction of the time between the development of the defects and the reporting of their presence to the road operator.

The practice

First, the in-situ measurement of pavement condition will be considered. Sensors will be identified and demonstrated for the provision of information on the structural capacity of highway pavements and structures. Applications will include real time health monitoring, assessment of the effects of the environment, and modelling structural deterioration. Both current and emerging sensors will be reviewed and their performance evaluated in trials at targeted sites.

Secondly, the measurements provided by the sensors fitted to standard production vehicles («probe vehicles») will be investigated in order to demonstrate a method for (potential) real-time monitoring of areas of the network having condition that affects user well being, and the identification of locations that may present a non-friction related hazard.

Finally, methods will be identified whereby data obtained from in situ measurements can be enhanced by those provided by probe vehicles, to provide network managers with a more complete picture of the condition of the network.

Contact:

Alex Wright, TRL Ltd
e-mail: mwright@trl.co.uk
Tel: +44 1344 770265
Fax: +44 1344 770356

Contributors to the research:

http://intro.fehrl.org