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Investigation of Driver Comprehension of Traffic Information on Graphical Congestion Display Panels using a Driving Simulator

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Abstract

In the UK, the Highways Agency has been investigating the use of Graphical Congestion Display Panels (GCDPs) to display real-time congestion and journey time information relevant to drivers on sections of the trunk road network. A GCDP can potentially display a greater detail of traffic information than traditional Variable Message Signs (VMS). The research described in this paper has investigated driver comprehension of information that may be contained in such signs with a view to establishing prototype design guidelines. A key objective of this concept study was to design and undertake laboratory research to examine whether the content of traffic information messages displayed by the GCDPs could be readily understood, by using a simple driving simulator as a subject workload task.

Sixty subjects participated in the simulator-based study and twenty sign designs were tested, with each sign classified as belonging to one of several different generic types with the best signs recommended to be taken forward for further research and testing. Two methods of measurement were used: verbal responses of the subjects to questions whilst driving the simulator and a written questionnaire after the experiment to record more detailed opinions. Although no single best sign design was identified, the research found that some sign design types were clearly more successful than others.

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