

Centrico BRIEFING NOTE

Using ITS to manage Europe's busiest roads



Dynamic Road Marking

SUMMARY

CENTRICO aims to deliver effective and consistent traffic management plans to increase the efficiency of traffic flow and improve safety along the TERN. Dynamic Road Marking (DRM) is one effective method for temporarily increasing road capacity and thus reducing congestion in the CENTRICO regions.

Keywords:

DTM (Dynamic Traffic Management), DRM (Dynamic Road Marking), traffic flow, capacity.

INTRODUCTION

Europe's citizens use the TERN daily for commuting and leisure travel. The road capacity of the TERN is generally sufficient for normal traffic conditions, however around urban areas during peak hours, congestion is a problem. This congestion is generally located at junctions, where the main traffic merges with accessing traffic. The capacity of the TERN in these areas is reduced because of the high flows of entering and exiting traffic. Road Authorities within CENTRICO are able to control the traffic flow in order to reduce congestion, using ramp metering, hard shoulder running and other Dynamic Traffic Management (DTM) measures.

Dynamic Road Marking (DRM) is one particular measure that needs further development, and so pilot studies and evaluation have taken place, in particular looking at user perceptions and durability of the markings. Road Authorities are able to share the knowledge and experiences gained from these pilots.

USE OF DYNAMIC ROAD MARKING

Dynamic Road Marking is used locally to increase road capacity and network-wide to manage capacity and ensure traffic safety. Road Authorities are able to adapt the road layout using DRM, depending on off peak and peak traffic conditions. Possible DRM applications include:

- Dynamic on / off ramp metering;

- Dynamic nose (junction configuration);
- Lane transition on ramp;
- Flex lanes / peak lanes;
- Off ramp buffer zones;
- Extra turn lanes;
- Vehicle guidance; and
- DRM use in peak lanes.

EXPERIENCES



Test location on A44 near Leiden

Several pilots in Germany and the Netherlands have taken place from 1999 up till now. For the first pilots



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in the Netherlands the equipment proved to be no match for environmental influences and heavy traffic conditions. Therefore the development of more solid systems was stimulated. This resulted in systems of five different suppliers which were compared in a test near Leiden. An evaluation report of these tests was finished in 2004.

Using the recommendations of these tests two new pilots were set up to monitor the traffic effects of DRM in different lay-outs.

The first pilot, A50 ramp Schaarsbergen, is the sequel to earlier tests (A15 and A44) and focused specifically on the behavior of the road user and the application in traffic. The evaluation of the behaviour of the road users and of disruptions on the system was started and will be finished in September 2005.

The second pilot, A2 nearby Rosmalen, included preparation of a contract and preparation of the maintenance of the DLM system. A DLM system should have been implemented and tested on drainage effects, skid resistance and sound production.



Example of dynamic road markings

However the project was terminated prematurely due to technical difficulties with the systems. The traffic research centre still was able to do several tests, although not as many as expected. The evaluation results of the project are being processed and results are expected by September 2005 as well.

Although the test near Rosmalen failed, the test at the A50 proved it is a technically feasible approach, which can be used for several traffic management measures.

In Germany another pilot was run on a motorway crossing near Frankfurt. DRM was used in off ramp situations. The pilot proved to be successful concerning the behavioural effects, but they also encountered some technical problems.



LED light used for DRM

REQUIREMENTS

The requirements for using DRM are now defined, based on the above experiences. DRM implementation needs to consider issues such as skid resistance, (in-) visibility, environmental standards, durability, construction, material and dimensions.

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