

Lane Control Sign Trial at N7/M50 Approach

Overview

The M50 motorway is the busiest road on the Irish National road network carrying more than 145,000 vehicles per day along its busiest sections. As a result, the M50 is facing increasing congestion challenges and is the most demanding road in Ireland in terms of traffic management requirements. For efficient demand management, incident detection and variable speed limits using Advanced Motorway Indicators (AMI) were identified as measures that should be integrated in the short to medium term. Prior to comprehensive deployment, a Lane Control Signal Trial was carried out.



Objectives

Prior to procuring services to undertake the deployment of AMIs along the full length of the M50, Transport Infrastructure Ireland (TII) undertook the deployment of three AMIs as part of a pilot scheme in 2016 with the objective to evaluate the viability for future deployment along the M50. The deployed AMIs can display both Lane Control Signals and Speed Limits.

At the relevant section of the N7 at Newlands Cross, an overpass had been constructed in 2014 which lead to a large number of motorists exceeding the speed limit, resulting in the perception of reduced safety amongst motorists. To mitigate the risk associated with the increased traffic speed, it was determined that this location was suitable to pilot the deployment of AMIs that could display both Lane Control Signals and Speed Limits.

Project description

For this pilot scheme, three AMIs have been installed. The three AMI signs are mounted on a gantry approaching the interchange at junction 9 of the M50 motorway.

The trial involved the evaluation of observed speed limits. The method for analysing the effectiveness of the AMIs as speed reduction measures was to measure the number of vehicle exceeding the speed limit displayed on the AMIs.

As baseline for comparison, the number of vehicle speeding when no message was shown was recorded. The Traffic Monitoring Unit Site 1070 is located immediately after the gantry the AMIs were installed on and was used to monitor average speed at this section of the national road.

The impact of no message, a 900 mm roundel and a bigger 1200 mm roundel displaying the 60 km/h speed limit was measured. A constant speed limit had been displayed during the pilot. Data was collected over 5 weeks in July and August 2016 to assess the impact of various speed roundel sizes on road users. In each week, the speed limit was displayed on different roundels and times of the day.

The analysis of data collected demonstrates that there is a clear correlation between use of the AMI speed limit and a lower percentage of vehicles exceeding 100 km/h. Furthermore, the use of the larger roundel size increases the speed limit compliance.

Overall, the 1200 mm roundel turned on constantly was the most effective option for reducing speed, as the most significant increase in speeds occurred during the periods in the final week where the 1200 mm roundel was employed.

Member States involved

Ireland

Budget

Total project cost covered by this Decision: € 200.000

EU contribution: € 40.000

Percentage of EU support: 20 %



Action promoter:

Results expected

The evaluation of the project focusses on the actual effect of the displayed speed limits on the road user speed.

The results of the study suggest that the use of a roundel displaying speed limits has a clear effect on traffic speeds, reducing the number of vehicles travelling in excess of 100 km/h by at least 25 %.

Roundel size was also found to be of significance for the effectiveness of the speed reduction, where the deployment of the larger the roundel resulted in a smaller number of cars exceeding 100 km/h.

The reduced speed will positively impact the traffic flow on this section of the road network and improve the road user safety.

The equipment performance was measured during both the duration of the pilot scheme and the ongoing deployment of the installed AMIs as well.

No faults have been recorded on the AMIs between December 2015 and February 2017 (when the final pilot scheme report was issued), and no downtime of the AMIs has occurred.

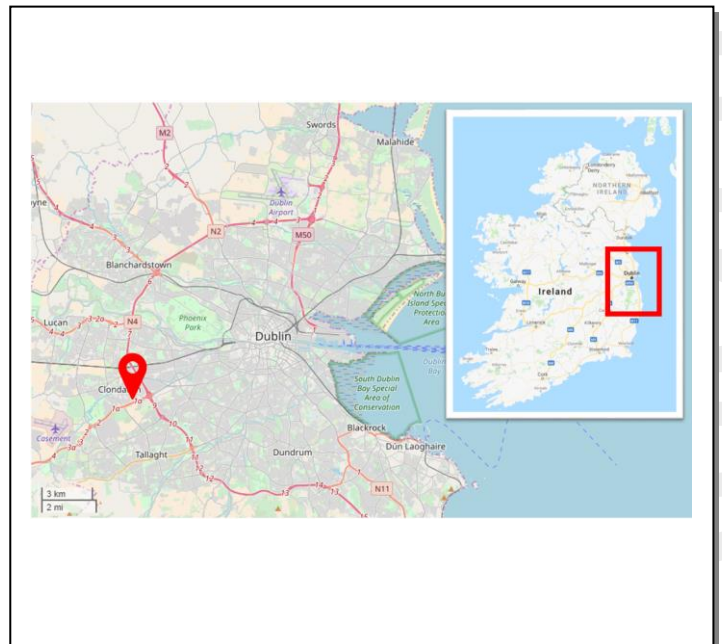
Implementation schedule

Start date: March 2015

During the pilot scheme, data was collected over 5 weeks in July and August 2016 to assess the impact of various speed roundel sizes on road users. In each week, the speed limit was displayed on different roundels and times of the day. The analysis was carried out subsequently

End date: December 2016

Geographical Location



Contact People

David Laoide-Kemp in Transport Infrastructure Ireland
David.Laoide-Kemp@tii.ie