

Anna Schirokoff, Satu Innamaa: Liikennetilanneohjatut muuttuvat nopeusrajoitukset pääteiden liittymässä. [Traffic controlled variable speed limits on a main roads' intersection] Kouvola 2004. Finnish Road Administration. Finnra Reports 29/2004. 36 p. ISSN 1457-9871, ISBN 951-803-283-1, TIEH 3200879

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SUMMARY

In the summer of 2002 an automatic traffic-controlled variable speed limit system was installed at the intersection of Finnish main roads 6 and 13. The target of the system was to affect the main road traffic flow so that merging from the minor road would be easier by lowering the speed limit from 80 to 60 km/h when traffic is heavy.

The first aim of this study was to investigate the effects of the system on the traffic flow. The second aim was to evaluate the functionality of the system and its control principles. The method was a before-after study. The effects of the system were estimated in different road weather and traffic conditions both in winter and summer time.

During the research period the speed limit 60 km/h was used more (36% of vehicles, 20-30% of time) than it was assumed to be needed in the planning phase (15-20% of vehicles, 8% of time). This might have been caused by to wrong parameter values in the control settings.

In order to fulfil the target for the system, the proportion of headways on the main road that were long enough for merging, should have increased. However, the lowered speed limits did not affect the headways. Meanwhile, the use of the speed limit 60 km/h decreased the mean speed of the traffic flow. It can be assumed that the decreased mean speed reduce the critical headway by at most half a second. Hence, the system might have a positive, however a very small, effect on the merging from the minor road. However, the reduction of the mean speed has a positive effect on the traffic safety in the junction area.

The results did not support the original hypothesis on the clear, positive effect. The critical headway could not be determined from the data. It is recommended that the result is confirmed with field measurements.

Based on further analysis, the system should be developed so that the intersection-bound traffic flow should be monitored far before the intersection. Hence, the control decision could be made according to the incoming traffic.

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