

Evaluating the Influence of Road Markings Retroreflectivity on Road Safety in Low Visibility Conditions

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Abstract : For road markings as a part of traffic control plan, it is considered to have a positive impact on road safety. Their importance is particularly evident in low visibility conditions when the field of vision and the driver's visual acuity are significantly reduced. The aim of this article is to analyze how road marking retroreflectivity affects the frequency of traffic accidents in low visibility conditions. For this purpose, 10,417.4 km single carriageway roads were analysed across Croatia in the period from 2012 to 2016. The research included accidents that may be significantly affected by marking retroreflectivity: head-on collisions, running off the road, hitting a stationary object on the road and hitting a stationary roadside object. The results have shown that the retroreflectivity level is negatively correlated to the total number of accidents and the number of casualties and injuries, which ultimately means that the risk of traffic accidents and deaths and/or injuries of participants will be lower with the increase of road markings retroreflectivity. These results may assist in defining minimum values of retroreflectivity that the markings must meet at any time as well as the suitable technologies and materials for their implementation.

Keywords : retroreflectivity, road markings, traffic accidents, traffic safety

Conference Title : ICTETS 2019 : International Conference on Traffic Engineering and Transportation Studies

Conference Location : Bangkok, Thailand

Conference Dates : January 17-18, 2019