

Study the Variation of Visibility of Road Marking with Time due to Traffic in Urban National Roads in Sri Lanka

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It has long been recognized that visibility of road marking is essential for efficient traffic flow and road safety. There are complaints of that the road marking in many national road of Sri Lanka have poor visibility in daytime and nighttime. The major reason for the poor visibility is low reflection levels of road markings. The performance of the road marking is affected due to embedment of glass beads, water on road way, drivers eyesight ,position and quality of headlamps, road surface debris etc. Retro-reflectivity is the ability of a road marking to reflect light from a vehicles head lights to the driving position of a vehicle. It will be determined by the amount of glass beads spread on the line and amount and quality of glass beads included in the body of road marking.

Main objective of this research is to understand the variation of visibility of road marking with time due to traffic and other environmental parameters, identify the optimum frequency of time for remarking in urban roads and introduce a guide line for remarking of road marking while integrating as a program to a road database in highway management tool as a future implementation.

Preliminary measurement carried at some high volume traffic roads in western province that considerable amount of reduction of reflectivity with time due to traffic. For example Galle road (A002) that has ADT of 77450 the reflectivity has changed by 46% after 9 months. Base line road (M001) has ADT of 90645 the reflectivity has changed by 62% after 6 months. Kollupitiya -Sri Jayawardanapura road (A000) has ADT of 79490 the reflectivity has changed by 69% after 12 months. The rate of reduction of reflectivity (RL per day) for Galle road (A002), Base line road (M001) and Sri Jayawardanapura road (A000) are 0.24, 0.48 and 0.26 per day respectively. IS EN 1436 and SLS 1384 introduces specifying criteria for yellow and white road markings .In IS EN 1436 the retro reflectivity value is given as $100\text{mcd/m}^2 / \text{lux}$ for dry white road markings and in SLS 1384 this value is given as $70\text{mcd/m}^2 / \text{lux}$. A relationship between the reduction of reflectivity and traffic and road environment parameters to be developed based on the reflectivity measurements.

Keywords: Retro Reflectivity, Daytime Visibility, Nighttime Visibility, ADT

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