

**STUDY THE VARIATION OF VISIBILITY OF ROAD
MARKING WITH TIME DUE TO TRAFFIC IN URBAN
NATIONAL ROADS IN SRI LANKA.**

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Department of Civil Engineering

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DECLARATION OF THE CANDIDATE AND THE SUPERVISOR

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ABSTRACT

It has long been recognized that visibility of road marking is essential for efficient traffic flow and road safety. There are complaints that the road markings in many national roads 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 can be affected due to embedment of glass beads, water on road way, driver's eyesight, position and quality of headlamps and road surface debris. Retroreflectivity is the ability of a road marking to reflect light from a vehicles head lights to the driving position of a vehicle. Retroreflectometer is used to measure the retroreflected luminance (R_L) of road markings. 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.



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Preliminary measurement carried at selected high volume traffic roads in Western province revealed considerable reduction of retroreflectivity with time due to traffic. For example in Galle road (A002) that has ADT of 87,332 the reflectivity has changed by 65% after 9 months for lane lines. Base line road (M001) has ADT of 90,645 where the retroreflectivity has changed by 70% after 6 months for lane lines. Kollupitiya –Sri Jayawardanapura road (A000) has ADT of 81,012 and the retroreflectivity has changed by 66% after 12 months for lane lines. BS EN 1436 and SLS 1384 introduce specifying criteria for yellow and white road markings. In BS EN 1436, the minimum retroreflectivity value is given as $100\text{mcd/m}^2 / \text{lux}$ for dry white road markings. A relationship between the reduction of reflectivity and traffic to be developed based on the retroreflectivity measurements.

Key words: – ADT— Retroreflected Luminance — Night Time Visibility

DEDICATION

To All Who guide me to the Success.



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LIST OF ABBREVIATIONS

Abbreviation	Description
RDA	Road Development Authority
Rt	Rate of Change of Retroreflectivity with Time
Qd	Luminance Coefficient Under Diffuse Illuminance
RL	Coefficient of Retroreflected Luminance
ADT	Average Daily Traffic
Loc	Location
Avg	Average



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