

# **ESTIMATION OF VEHICLE KILOMETERS TRAVELLED IN SRI LANKA**

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Degree of Master of Engineering in Highway & Traffic Engineering

Department of Civil Engineering

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Dissertation submitted in partial fulfillment of the requirements for the degree Master of  
Engineering in Highway & Traffic Engineering

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## Declaration

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## Abstract

Vehicle kilometers traveled (VKT) is the total kilometers traveled by motor vehicles on the highway system during a given period (particular year). Vehicle kilometers traveled by passenger automobile is an important factor in Transport planning, allocating resources, estimating vehicle emissions computing energy consumption, assessing traffic impact, analysis of accidents (i.e. the number of deaths per billion vehicle kilometers driven) Infrastructure investment decision and to make policy decisions.

In this report VKT is calculated by multiplying of vehicle factor, total fuel sale volume, and fuel consumption rate. Vehicle factor was estimated by dividing the fuel usage each vehicle type by total fuel usage. In order to estimate the vehicle factor, initially vehicles are classified, based on the Petrol and Diesel vehicles and prepared the Survey form in order to collect the fuel usage data and fuel consumption rate. By analyzing the collected data, vehicle factor and average fuel consumption rate were determined for each vehicle type. Since direct measurement of vehicle kilometers traveled has never been used, the several assumptions have been made in this study.

VKT has been calculated for each vehicle type for the year 2012 based on survey carried out in the year 2012. Considering the 2010, 2011 and 2012 fuel sale data, fuel sale growth factor is calculated for the year 2013 and 2014. VKT has been estimated for the year 2013 and 2014 for each vehicle type assuming the vehicle factor is used in 2012 is same for the year 2013 and 2014.. In similar manner VKT for each vehicle type can be determined for the future years, Fuel consumption and fuel sale data can be obtained for each year and vehicle factor need to be estimated since it may not be same for each year. Therefore in this report illustrates the methodology to find the minimum no of survey location for estimation of vehicle factor at a 95% of accuracy. It was found that Motor Cycle factor for Colombo District can be estimated using eight number of Survey locations.

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