1. INTRODUCTION

1.1 General

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

Transport is a vital link that brings people and goods together across a country. People rely on it to get to work and for educational, social and recreational activities. Transport also connects suppliers to markets and helps showcase our natural environment through tourism.

Road transport is the dominant mode of transportation in Sri Lanka. While it provides many economic and social benefits, it also has environmental and health impacts. For example, road transport is a primary source of harmful air pollutants in some urban areas. Waterways can be affected by contaminated run-off from roads, and wastes such as used oil, batteries and tyres require careful disposal.

It is difficult to quantify the actual environmental and health impacts, number of accidents, of road transport at the national level. However, the distance travelled on our roads (also known as vehicle kilometres travelled or VKT) is a good proxy for the pressure road transport puts on the environment. This measure is widely used internationally to assess the magnitude of the pressure and how it is changing over time.

By understanding the total distance travelled on Sri Lankan roads, the types of vehicles we use, and fuel type and how intensively we are using our road transport, we can learn more about the pressure on road transport is placing on the environment, the expenditure spent on roads. As the growth of the economy the VKT factor for a country and area changes. To conclude about the other related measures the VKT should be calculated accurately every year.

For a developing country like Sri Lanka, very expensive to carry out the surveys on island wide for estimation of VKT for each year. The same expenditure cannot be allocated to calculate the annual VKT every year. With this condition the research focuses on predicting the future VKT with the developed model.
1.2 Objectives

- The main objective of this research is to estimate the VKT in Sri Lanka and to develop a model to predict the VKT factor in the future years.
- The sub objectives of the research are to calculate the vehicle factors in province vise, in Petrol Diesel vise and in Vehicle type vise.

1.3 The Methodology

To achieve objectives following methodology was adopted.

- Collected the fuel volume pumped for each type of vehicle from 6:00 am to 6:00pm in selected fuel stations covered in all roads in Sri Lanka.
- The total fuel volume was obtained for the each district in Petrol and Diesel separately.
- The proportion of the each vehicle type was found by dividing the total fuel volume pumped for each vehicle in the district by the total fuel pumped for all the vehicles in the district.
- Vehicle Kilometers Travelled was found for each vehicle type for each district, each province and island wide.
- To predict the future VKT, vehicle factor, Fuel usage, Fuel consumption rate are required, and in order to find vehicle factor, hypothesis analysis was carried out to find the minimum no of survey points which has 95% accuracy.
1.4 The Scope of the Research

Chapter 2 presents a detailed literature review covering the main topics related to the research.

Chapter 3 illustrates the proposed methodology for calculating the VKT for the base year.

Chapter 4 illustrate the analysis of the data collected on the fuel consumption by different type of vehicles in Sri Lanka and the conclusions made on the results.

Chapter 5 illustrates the developed methodology to find the future VKT.

Chapter 6 illustrates the developed methodology to find the future VKT.

Chapter 7 illustrates the Conclusion of the Research

Chapter 6 illustrates the future work that can be done with the base of this research.