CHAPTER 1

INTRODUCTION

1.1 BACKGROUND OF STUDY

Malaysia has grown rapidly development in the field of transportation since 20 years ago. This development caused from the high rate of population growth, urbanization and economic progress. With this rate, the number of vehicles on the road increases, then the volume of traffic increases. According to statistics from the Jabatan Keselamatan Jalan Raya Malaysia (JKJR, 2009), statistic of road accidents in Malaysia showed that the rate of road accidents in Malaysia is increasing and concern. In addition, traffic congestion on the road also rises due to the increase in vehicle usage among Malaysians. This situation causes increased of CO emission from vehicle that affect on the environment in terms of speed and volume of vehicle. Transportation sector and transportation planning are the factor of cause air pollution and change the speed vehicle.

Transportation sector is one of the factors that contribute to air pollution happen especially in cities. Even in developing countries, the transport sector is a major contributor to air pollution. Pollution that occurred because of the vehicle comes from the importance part of the vehicle. Many type of pollutant release from the vehicle likes carbon monoxide, nitrogen oxide etc. This pollutant has many affect to the environment and also to human health. Air pollution by transport factor is causing use of fuel as a booster for the vehicle. It is the main ingredient of the transport sector. Evaporation of fuel, engine ventilation system and the main thing is a waste of fuel combustion, which is hundreds mixing gas and aerosol is a major cause of various pollution discharge of from transport sector.
Next, transportation planning involves of planning, functional design, operation and management in every aspect of transportation to provide safety, rapidity, comfort, convenience, economical and environmentally friendly to the movement of people (Gordon, 1979) and also affect the speed of vehicle. Road maintenance is one of the activities that are important to ensure the performance of a way to always be in good condition and suitable for use. Each roads built are carefully designed according to the characteristics and particular suitability to fulfil the needs and achieve a satisfactory level. The roads are built will have the characteristics such as wide an appropriate way, and there is an intersections and a strategic passage for users of vehicles in and out of the way.

1.2 PROBLEM STATEMENT

Intersection is the one of the traffic calming and the problem at traffic system is first appeared at intersection such as congestion and traffic accident. At intersection, there is often a lot of traffic activity such as stop and go condition, turn left or right and change lane can produce vehicle emission that will affect the environment.

Therefore, this study was to assess the association of vehicle speed and volume to CO emission at the intersection. Through this study, speed and volume vehicle when through the intersection are known and the value of CO emission from vehicle is record.

1.3 OBJECTIVE

This study was done to evaluate the effect of speed and volume of vehicle to CO emission at intersection. To achieve the aim of this study, the following objectives have been set:

i. To identify the association of vehicle speed & volume of vehicle to CO emission at the intersection

ii. To formulate level of CO emission based on vehicle speed and volume of vehicle
1.4 SCOPE OF STUDY

To ensure that the goals and objectives are achieved, the study was conducted on two intersections. There were signalized intersections at Indera Mahkota and Jalan Tanah Putih (Giant) in Kuantan. The study was conducted by collecting data of speed and volume of vehicle that passes through the intersection. Besides that, CO emission level also was gathered for intervals of 15 min at 2 hours during peak period.

These studies only focus the road heading to central business district (CBD) because CBD is area has attraction in term of facilities and entertainment. Factor gradient, the road width and the width of the intersection is ignored in this study. Data for these observations observed at peak hour; morning peak, afternoon peak and evening peak in weekday and weather factors were also considered in this study.

1.5 RESEARCH SIGNIFICANT

To achieve the aims and the objectives, the research is done on two intersections at Kuantan. The researches begin with speed and volume of vehicle data collection and CO emission of the vehicles that passing the intersection. After obtained the data, the data will be analyzed and the association between speed and volume to the level of CO emission will be determined and traffic models were developed.