

CHAPTER 1

1.1 INTRODUCTION

National Statistic Department Malaysia predicted that Malaysian population will be increase to 31.5 million in 2040. (Tan Sri Dato' Soong Siew Hoong, 2013). Of course each one of them will have their own dreams to buy own vehicle. In addition, this will influences the traffic flow since the number of vehicle on the road will increase along the time. It will also give the worst effect when it comes to the intersection. Intersection is where the vehicle from other direction meet. If the number of vehicle increase, this will cause a worst traffic flow when need to change the lane or direction during driving. Besides that, the congestion and accident also can happen due to the worst traffic flow especially during peak hour.

There are various type of intersection which are signalized intersection and unsignalized intersection. At the signalized intersection, traffic light will be used to control the movement of the vehicles. The problem of traffic light system is one of the factor that contribute to the traffic congestion. By referring to Dictionary.com, traffic lights which also can be known as traffic signal is a set of electrically operated signal lights used to direct or control traffic at intersections. Traffic control started to seem necessary in the late 1890s and Earnest Serrine from Chicago patented the first automated traffic control system in 1910 which is used the words "STOP" and "PROCEED". (Mary Bellis, 2016). Therefore, the problem of traffic light system will increase the volume of the vehicle lineup and cause the congestion and delay happen.

Besides that, traffic signal is also important to reduce the number of vehicular traffic, delay, accident, utilization of police traffic and maintain the smooth of traffic flow. There are two types of traffic signal which are fixed timed and actuated signals. Fixed-time signals follow a predetermined sequence of signal operation, always providing the same amount of time to each traffic movement, whether traffic is present or not. Actuated

signals change the lights according to the amount of traffic in each direction. They use various types of sensors to detect vehicles, and adjust the length of the green time to allow as many vehicles as possible through the intersection before responding to the presence of vehicles on another approach. (WYDOT Quick Facts Traffic Signals, 2012).

The sequences of traffic signal are green, amber (yellow) and red. The green light means the driver can proceed their driving while the amber (yellow) light warns the driver to stop at the junction because the signal is about to change to red. Meanwhile, the red signal means the driver need to stop the vehicle in order to prevent the collision between the vehicles from other direction. In designing the traffic signal, guiding principles that must be followed are minimum number of phases, short cycle lengths and the level of service of signalized intersection must same as the road system. If there are problem with the traffic signals system, it can effected the traffic flow especially during peak hours.

1.2 PROBLEM STATEMENT

Nowadays, traffic flow is the common problem occur not only in the urban but also in rural area due to the increases of vehicle. Jalan Gambang – Kuantan at batu 10 which is at the intersection is getting congested especially during AM & PM peak hours. Besides that, during festive season the road becomes more congested as it is the main road to Kuantan. This occur due the setting of signalized intersection that not suit with the volume. Most of the traffic get stuck and cannot proceed the driving. Only a few of them can proceed the driving. Therefore, the vehicle that are lineup will increase. This will affected the daily activities of the people as they wasted their time at the traffic light. This study was conducted to determine existing level of service of the signalized intersection during the peak hours. The study location of the T- signalized intersection is located at Batu 10, Jalan Gambang which is the major road to the Kuantan and near to the SMK Seri Mahkota. Figure 1.1 shown the location of the study area.

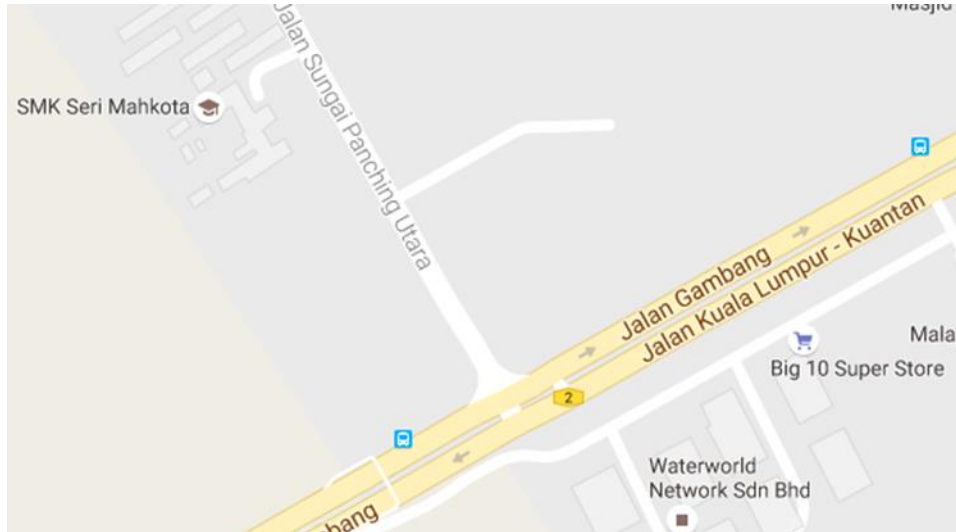


Figure 1.1: Study Area
(Sources Google Maps)

1.3 OBJECTIVE

The aim of this study is to determine whether the problem of traffic light system is the factor of the traffic flow problem at Jalan Gombang – Kuantan. The objective of this research are

- i. To determine the existing level of service (LOS) of the signalized intersection during AM and PM peak hour.
- ii. To propose possible mitigation measures in order improve the future operating level of service (LOS).

1.4 SCOPE OF STUDY

The scope of this research focused on the assessment of LOS in evaluating the performance of a signalized intersections. This is only limited to insolated signalized intersection. All the data will be taken during peak hour of weekdays (Monday to Friday) and weekend (Saturday and Sunday) within 7 to 10 AM & 4 to 7 PM. The data that will be collected at the study area are geometric data, signalization data and traffic volume data. The data that obtained will be inserted into the input worksheet of MHCM 2006.