SUSTAINABILITY STUDY OF U-TURN AT KM16 – KM 18,

JALAN KUANTAN - GAMBANG

NOR AZLIAYANA BINTI AHMAD NORDIN

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NOR AZLIAYANA BINTI AHMAD NORDIN

Thesis submitted in fulfillment of the requirements
for the award of the degree
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SUPERVISOR'S DECLARATION

I hereby declare that I have checked this thesis and in my opinion, this thesis is adequate in terms of scope and quality for the award of the degree of Bachelor (Hons.) of Civil Enigneering

Signature :
Name of Supervisor : DR INTAN SUHANA BINTI MOHD RAZELAN
Position : SENIOR LECTURER
Date : 11 JANUARY 2017

STUDENT'S DECLARATION

I hereby declare that the work in this thesis in my own expect for quotations and summaries which have been duly acknowledged. The thesis has not accepted for any degree and is not concurrently submitted for award for other degree.

Signature :
Name : NOR AZLIAYANA BINTI AHMAD NORDIN
ID Number : AA13038
Date : 11 JANUARY 2017

Dedicated to my beloved supervisor,my family and all my friends who love me and support me during my whole journey of education at the University of Malaysia Pahang

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ABSTRACT

In Malaysia, the rapid growth in the automobile industry springing up like mushrooms after the rain. The affordable prices of vehicles resulted in Malaysians race to buy more that made a total of 4.91 million of vehicles have been registered to JPP in 2015. Within the increasing number of vehicles, the capacity of vehicles on the road is also increase. The objectives of this study are to identify the driving behavior during peak hour, to identify causes of traffic congestion at peak hour and to assess the sustainability of U-turn at the Kuantan- Panching intersection, Jalan Kuantan - Gambang. The study area is located at Federal Road 2 from KM16 until KM18 Jalan Kuantan – Gambang. A set of video recorder was used as an observation device in the study area to collect the data on driving behavior and congestion factor within this area. The duration of recording is two hours, respectively, during peak hours from 7 a.m. to 9.a.m , 12.00 p.m. to 2 p.m. , and 4 p.m. to 6 p.m.. The result of this study showed the common driving behavior done by road user's at the study areas which are red light running, failing to signal, queue jumping, make an illegal U-turn and do not wear the helmet. The result also showed that the factor that lead to congestion happen is the more vehicles queuing in waiting for making a U-turn or right turn to Sg. Pahncing outside the storage lane. This situation happens cause inadequate design of storage length that failing to accommodate the maximum vehicles queuing during peak hour. Results from this study is the hope that the parties concerned, such as the Public Works Department (JKR) or Kuantan Council (MPK) can make some improvements of existing design in order to reduce the traffic congestion and indirectly will provide good benefits to road users in daily travel.

ABSTRAK

Di Malaysia, pertumbuhan pesat dalam industri automobil muncul seperti cendawan selepas hujan. Harga yang berpatutan menyebabkan rakyat Malaysia untuk membeli lebih banyak kenderaan yang membuat sebanyak 4.91 juta kenderaan telah didaftarkan untuk JPP pada tahun 2015. Ekoran peningkatan jumlah kenderaan, kapasiti kenderaan di jalan raya juga meningkat. Objektif kajian ini adalah untuk mengenal pasti tingkah laku pemanduan pada waktu puncak, untuk mengenal pasti punca-punca kesesakan lalu lintas pada waktu puncak dan untuk menilai kemampanan pusingan U di persimpangan Kuantan- Panching, Jalan Kuantan - Gambang. Kawasan kajian terletak di Jalan Persekutuan 2 dari KM16 hingga Km 18 Jalan Kuantan - Gambang. Satu set perakam video telah digunakan sebagai alat pemerhatian di kawasan kajian untuk mengumpul data pada tingkah laku pemanduan dan faktor kesesakan dalam kawasan ini. Tempoh rakaman adalah dua jam iaitu, pada waktu puncak dari 7 pagi hingga 9 pagi, 12:00tengahari hingga 2:00 petang, dan 4 petang hingga 6 petang. Hasil kajian ini menunjukkan tingkah laku pemanduan biasa dilakukan oleh pengguna jalan raya di kawasan kajian yang lampu merah berjalan, gagal untuk memberi isyarat, memotong barisan, membuat haram U-turn dan tidak memakai topi keledar. Kajian ini juga menunjukkan bahawa faktor yang membawa kepada kesesakan berlaku adalah lebih banyak kenderaan yang beratur menunggu untuk membuat U-turn atau belok kanan ke Sg. Pahncing luar lorong simpanan. Keadaan ini berlaku disebabkan kegagalan reka bentuk yang tidak mencukupi panjang penyimpanan yang gagal menampung kenderaan maksimum beratur semasa waktu puncak. Hasil daripada kajian ini adalah harapan bahawa pihak yang berkenaan, seperti Jabatan Kerja Raya (JKR) atau Majlis Kuantan (MPK) boleh membuat beberapa penambahbaikan reka bentuk yang sedia ada bagi mengurangkan kesesakan lalu lintas dan secara tidak langsung akan memberi faedah yang baik kepada pengguna jalan raya dalam perjalanan harian.

CHAPTER 1

INTRODUCTION

1.1 BACKGROUND

Traffic congestion is a normal phenomenon associated with transportation, especially in urban areas. Congestion is one of the problems involving road. Normally, network congestion occurs on land transport on roads.

As demand approaches the capacity of a road or of the intersections along the road, extreme traffic congestion will sets in. When vehicles are fully stopped for periods of time, this is colloquially known as a traffic jam or traffic snarl-up. Traffic congestion can lead to drivers becoming frustrated and engaging in road rage.

Managing Urban Traffic Congestion Report (2007) stated that traffic congestion refers to the physical phenomena related to behavior or situations that prevent the movement of vehicles to each other in order to get the limited space on the road to achieving maximum capacity. Congestion also refers to the phenomenon in relation to the expected performance of the service road system vis-a-sis (networked).

Congestion also is the inability to move (immobility). Congestion is a phenomenon in which long lines of vehicles moving slowly or stopped at the highway city, suburban highways or city streets. Congestion can occur every day at the same time at a specific location that is referred to as recurrent congestion or accidents during road maintenance or availability of any non-recurring congestion. Normally, congestion occurs when the road system cannot accommodate the volume of traffic at a reasonable speed, there is a conflict

between the various types of traffic such as cars, trucks, buses or pedestrians and traffic control are not used efficiently. Convergence path, decreasing the capacity of a sudden, that movement is stuck or increased friction also led to increased traffic congestion (Rahim F. (Ray), 1997).

In addition, according to Daniel Mohamed (1993), congestion occurs due to the long queue of vehicles along the way and the vehicle cannot move smoothly due to certain obstacles. Among the forms of barriers that exist are a crossroads and traffic lights that affect delay, accidents, floods as well as road maintenance.

Apart from that, Bruton (1982) stated that , traffic congestion can cause discomfort and emotional problems (anger, worry and stress of mind) that can interfere with a driver's concentration on the road and causing accidents. The density of vehicle movements can also cause the gathering of pollutants from the exhaust of vehicles in the city area. The density of vehicular movement occurs when people have the same destination. In addition, the lack of a systematic traffic route that lead to conflict between pedestrians and motor vehicles, and between vehicles and the vehicle itself could also cause congestion to happen.

Annual report (2013) by Tom Tom stated 10 most congested cities facing a congestion in peak hours. Peak hour congestion is generally of most public policy concern than all day congestion. This happens because of the concentration of work trips in relatively short periods of time. Work trips are by no means the majority of trips, but it can be argued that they cause the most congestion. Many cities have relatively less off-peak traffic congestion.

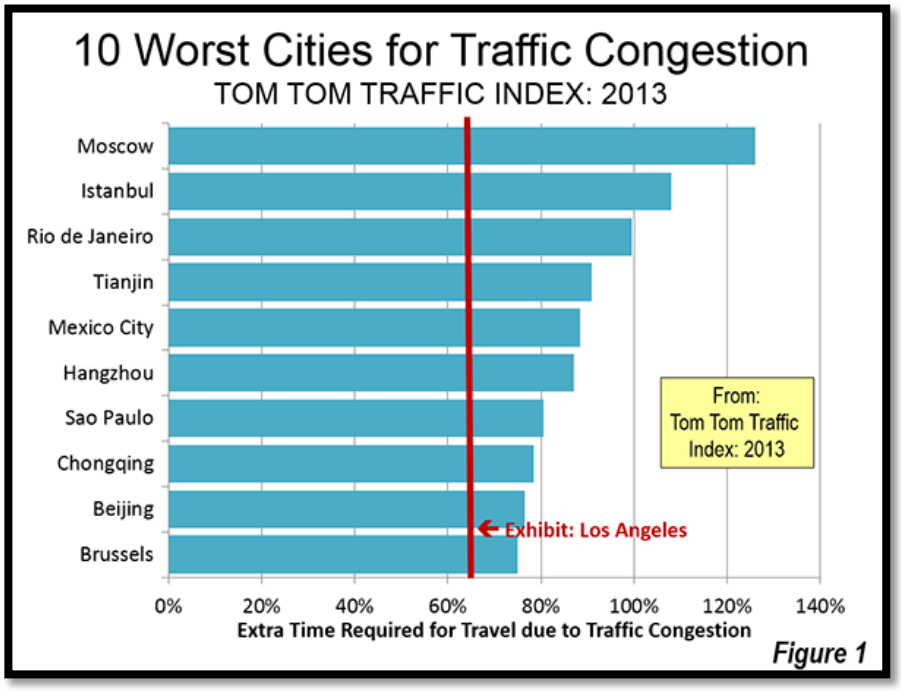

Figure 1.1: The statistical of 10 worst Cities for Traffic Congestion in 2013.

Figure 1.1 shows the worst globally cities facing traffic congestion every day. The Moscow city spends more 120% extra time required for travel due to traffic congestion. For Brussels city, extra time required for travel is more than 60% . This show the level of traffic congestion happen globally were high.

In Malaysia, Kuala Lumpur is the first cities ranking the worst traffic congestion every day. In 2015 the denizens of Kuala Lumpur spend between 270 million to 500 million hours being stuck in traffic annually, which translates to RM 5.51 billion in productivity lost per annum. Penang and Johor have also undergone rapid development and traffic congestion is increasingly becoming a big issue in this city (Smart Cities- Chapter 4,2016).

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