EFFECTIVENESS OF MONORAIL TRANSPORTATION IN KUALA LUMPUR

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Specially dedicate to my beloved father Harman Bin Mat Rafar and my beloved mother Zainab Mohd Noah and also my sibling Zulhairi Bin Harman.

Thanks you for your support, sacrifice and loving me.

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ABSTRACT

In Kuala Lumpur the Government of Malaysia is investing on several public transports including KL Monorail. Monorail is a transportation system based on a single rail, which act as its sole support and its guide way. The purpose of the study is to assess the effectiveness of monorail transportation system performance in Kuala Lumpur through the capacity analysis and quality of service evaluation of the train those it look at user's perception and experience by using the system. Data on passenger load of the KL Monorail obviously showing a pattern according to direction and Passenger load with the highest number recorded at Raja Chulan station during AM peak hour period for both directions. Capacities of the monorail are 2493 p/hr for KLS to TSA direction and 2691 p/hr for TSA to KLS direction. Research found that, more than one segment facing over limits on the passenger demand compared to the ability. There are many of the segments of the KL Monorail service track are facing LOS of E and F. Regarding to the founding, some suggestion improvement that can be apply to increase the effectiveness of monorail transportation system performance in Kuala Lumpur in context of transferring people along their track service.

ABSTRAK

Di Kuala Lumpur kerajaan Malaysia telah melabur ke atas beberapa pengangkutan awam oleh, seperti monorel atau nama komersial KL Monorel. Monorel adalah satu sistem pengangkutan berasaskan rel yang berdasarkan rel tunggal, yang bertindak sebagai sokongan dan arah panduan. Tujuan kajian adalah untuk menilai keberkesanan prestasi sistem pengangkutan monorel di Kuala Lumpur melalui analisis kapasiti dan kualiti penilaian perkhidmatan kereta api yang dilihat pada persepsi dan pengalaman pengguna sepanjang menggunakan system ini. Berdasarkan data beban penumpang KL Monorail jelas menunjukkan corak yang mengikut arahan laluan dan beban penumpang dengan jumlah tertinggi dicatatkan di stesen Raja Chulan semasa waktu puncak Pagi bagi kedua-dua arah. Kapasiti monorel dari KLS kepada arahan TSA ialah 2493 p/jam dan 2691 p/jam untuk TSA ke arah KLS. Penyelidikan mendapati bahawa lebih daripada satu segmen laluan menghadapi lebih had permintaan penumpang berbanding kepada keupayaan. Terdapat banyak segmen laluan perkhidmatan KL Monorail menghadapi LOS E dan LOF F. berdasarkan dapatan kajian, beberapa cadangan penambahbaikan yang boleh diaplikasian untuk meningkatkan keberkesanan prestasi sistem pengangkutan monorel di Kuala Lumpur dalam konteks memindahkan pengguna disepanjang laluan perkhidmatan.

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LIST OF ABBREVIATIONS

ABBREVIATION		FULL NAME
LOS	-	Level of Service
PHF	-	Peak Hour Factor
KL	-	Kuala Lumpur
KTMB	-	Keretapi Tanah Melayu Berhad
ERL	-	Express Rail Link
KLS	-	KL Sentral
TUN	-	Tun Sambanthan Station
MAH	-	Maharajalela Station
HAH	-	Hang Tuah Station
IBI	-	Imbi Station Station
BNG	-	Bukit Bintang Station
RAN	-	Raja Chulan Station
BAS	-	Bukit Nenas Station
MKU	-	Medan Tuanku Station
CIT	-	Chow Kit Station
TSA	-	Titiwangsa Station

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CHAPTER 1

INTRODUCTION

1.1 Background

Generally, transportation system may be defined as consisting of the fixed facilities, the flow entities and the control system that people and goods use to overcome the friction of geographical space efficiently in order to participate in a timely in some desired activity (Papacosta, 1987).

The government of Malaysia has invested heavily in transportation system including the Kuala Lumpur monorail system (KL Monorail). Monorail is transportation system based on a single rail which acts as its sole support and guide. KL Monorail was designed, constructed and officially opened on 31 August 2003. It serves 11 stations running 8.6 km (5 mi) with two parallel elevated tracks. It connects the Kuala Lumpur Central transport hub with the "Golden Triangle". It was completed at a cost of MYR 1.18 billion by the KL Infrastructure Group (KL Infra).

In Malaysia, public transportation including KL monorail is subsided by the government. However the values of the subsidy provided are relatively not enough and may not be able meet the surging demand (Kiggundu, 2009). This situation will give challenge to public transportation to balance their cost and income and at the same time provide effective services to their passengers.

Many people who claim to be discussing productivity are actually looking at the more generally issue of performance (Tangen S., 2002). In a study carried out by Kasipillai and Chan (2008), targeting a sustainable transportation system in Malaysia hinges on, (i) alteration of charges on road taxes and car insurance, (ii) elimination of fuel subsidies, (iii) imposition of fuel taxes amendment in the bases for car taxation, (iv) congestion charging particularly in Kuala Lumpur and (v) national road pricing. Current trend of ridership of the public transportation in Kuala Lumpur are generally low with only 20% of the total person trip in Kuala Lumpur as compared to neighbouring countries where it ranges from at least 40% to over 70% (Schwarcz, 2003).

Performance of transportation study hinges on effectiveness, therefore indicators such as basic accessibility, travel time, reliability, and quality of service, frequency of service and passenger density have to be evaluated. Level of service concept is also a qualitative measurement that is divided into six levels, A through F representing a range of values defined by the characteristic of a particular service measures. Level A, is the best and F is worst.

1.2 Problem Statement

KL Monorail is one of the public transport service provided by Syarikat Prasarana Negara Berhad. The service operation began in 2003, the total number of the KL Monorail passenger are only 2,927,542. This number increases yearly, however, in the year 2009, the total passengers carried by KL monorail decreased by 3.4%. In any case, ridership is an important performance indicator that will allow transport operators to provide services efficiently. KL Monorail is a train transit service system aimed at reducing travel time and increasing mobility by the urban passengers. If the service performance is low, passenger are likely to be less satisfied over time. Conversely, high service performance is assumed to increase satisfaction with the service (Firman, 2004).

The purpose of the study is to assess the effectiveness of monorail transportation system performance in Kuala Lumpur. Since the study hinges on effectiveness, it is pertinent that, transit capacity and quality of service be assessed. In the light of the aim of the study, the objectives needed to achieve the aim are presented in the next section.

1.3 Aim and Objectives of Study

The aim of the study is to assess the effectiveness of monorail transportation system performance in Kuala Lumpur. Objectives needed to achieve the aim are:

(i) To determine the passenger load at peak hour.
(ii) To determine the person capacity of monorail.
(iii) To determine the level of service (LOS).

1.4 Scope of Study

The scope of the study will be focused on the performance of the KL Monorail system in Kuala Lumpur. The system connects KL Sentral to Titiwangsa with a total length of 8.6 km and serves 11 stations. The study did not take into account special event days, night travels and rainfall conditions.

1.5 Significance of Study

Results of the study may be useful to the operator of KL monorail as well as give an insight into the monorail users view of the services provided. By getting a

feedback of the customers' expectations, it is hoped that KL monorail will be positioned to give continuous service improvement while remaining competitive.

1.6 Limitation of Study

The study is limited by time and fund. The resources available to the researchers are sparingly thin nevertheless the study focused on peak hour round trip KL monorail travel under dry weather and daylight conditions. Data collection and observation of the passenger density were carried out on week working days only so as to reflect a strong trip attractions generated by employment among others. All the data collections were done manually using the basic instruments, including the questionnaire forms. All the data collected were analysed according to Trains Capacity and Quality of Service Manual and Highway Capacity Manual (HCM 2010). In spite of regrettable ardent errors associated with manual data collection, the study is buoyant with confident that the study outcomes will depict the true and fair view of KL monorail quality of service.