ANALYSIS ON JUNCTION PERFORMANCE FROM 5 DEVELOPMENT AT JALAN IPOH LUMUT (FT100), MANJUNG, PERAK.

ROSLI BIN HASHIM

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Dedicated to my beloved wife, Yang Zahidah, my daughter Norhazwani, Noralia Amirah ,Norliyana,Norsyahirah and my granddaughter, Sarah Waliyah

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ABSTRACT

Traffic Impact Assessment (TIA) is a study to review, understand and mitigate adverse traffic impact of a new development on the existing road network. TIA is usually imposed by authorities such as Public Works Department (JKR), Malaysia Highway Authorities (LLM) or local authorities as a condition to obtain approval for road and drainage plan as well as the planning permission. It is important to evaluate the traffic impact of a development onto the existing road network so to recommend appropriate mitigation measures to accommodate the additional trips generated by the proposed development in specific and to improve the traffic flow and circulation in the vicinity of the study area in general. In this study, a traffic model is constructed using SIDRA that essentially consists of an advanced suite of functionalities which are broadly adopted worldwide in comprehensive transport planning studies and analyses. Junction Analysis is becoming an important scope in project commencement to measure the effect of a particular developer's traffic toward the transportation network. Jalan Ipoh Lumut (FT 100), Manjung, Perak is a busy arterial road. In addition, there are also intersections with unacceptable traffic conditions during peak hours. Under such circumstances, appropriate traffic management plan is necessary to improve the road safety as well as traffic conditions along Route FT 100. It also will measure the current traffic condition by using SIDRA for Level of Services (LOS).

ABSTRAK

Penilaian Kesan Trafik (TIA) adalah satu kajian untuk mengkaji semula, memahami dan mengurangkan Mpact trafik buruk satu perkembangan baru di rangkaian jalan raya yang sedia ada. TIA biasanya dikenakan oleh pihak berkuasa seperti Jabatan Kerja Raya (JKR), Lembaga Lebuhraya Malaysia (LLM) berkuasa orlocal sebagai syarat untuk mendapatkan kelulusan untuk jalan dan perparitan serta kebenaran merancang itu. Ia adalah penting untuk menilai kesan trafik sesuatu pembangunan ke rangkaian jalan sedia ada jadi untuk mencadangkan langkah-langkah tebatan yang sesuai untuk menampung perjalanan tambahan yang dihasilkan oleh pembangunan yang dicadangkan dalam tertentu dan untuk meningkatkan aliran trafik dan peredaran di sekitar kawasan kajian dalam umum. Dalam kajian ini, model trafik dibina menggunakan SIDRA yang pada asasnya terdiri daripada kaedah dayamaju fungsi yang meluas diterima pakai di seluruh dunia dalam kajian perancangan pengangkutan yang komprehensif dan analisis. Analisis Junction menjadi skop penting dalam pelaksanaan projek untuk mengukur kesan trafik pemaju tertentu ke arah rangkaian pengangkutan. Jalan Ipoh Lumut (FT 100), Manjung, Perak adalah jalan arteri yang sibuk. Di samping itu, terdapat juga persimpangan dengan keadaan trafik yang tidak boleh diterima pada waktu puncak. Dalam keadaan itu, pelan pengurusan trafik yang sesuai adalah perlu untuk meningkatkan keselamatan jalan raya dan juga keadaan lalu lintas di sepanjang Laluan FT 100. Ia juga akan mengukur keadaan trafik semasa dengan menggunakan SIDRA bagi Tahap Perkhidmatan (LOS).

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CHAPTER 1

INTRODUCTION

1.1 Background of Study

Understanding the demands placed on the road network by infrastructure developments is an important dimension of assessing the overall impact of development. All infrastructure development generates traffic, and it may generate enough traffic to create congestion that may lead to a need for improvement to the existing infrastructure. As a result, traffic impact assessment [TIA] is a powerful tool for engineers and transport planners to determine the possible effects of development on the transportation and traffic system and to mitigate any negative impacts.

1.2 Definition of a Traffic Impact Assessment

A TIA is a study which assesses the traffic and safety implications relating to a specific development. These studies vary in their range of detail and complexity depending on the type, size and location of the development. The TIA study for a new development is undertaken to assess whether the road network surrounding the proposed development will be able to handle the additional traffic while still maintaining an acceptable level of service [e.g. performance at level D or better].

1.3 The main functions of TIA study are:

i. To determine the existing traffic condition, future conditions without the development, and future conditions with the development in place;
ii. To estimate the traffic likely to be generated by the proposed development;
iii. To assess the impact of additional traffic on the existing and future road network system;
iv. To identify roadway improvements and changes in the site plan of the proposed development necessary to minimize traffic impact.

1.4 Study Objectives

The primary aim of the study are to ascertain the trip generation of the proposed development as well as to identify appropriate solutions to minimize the adverse traffic impact of the proposed development onto the surrounding road network.

The impacts of downloading further travel demands generated by the proposed development on the existing major roads particularly Route 100 as well as surrounding intersections, is of paramount interest and therefore a Traffic Impact Assessment study is necessary. To achieve the aim this study is based on the following objective :

i. To investigate the trip generation of the proposed development
ii. To recommend appropriate mitigation measures to accommodate any adverse traffic impact to achieve and consequently to improve the traffic flow and circulation in the vicinity of the study area
iii. The impacts of downloading further travel demands generated by the proposed development on the existing major roads particularly Route 100 as well as surrounding intersections, is of paramount interest and therefore a Traffic Impact Assessment study is necessary. investigate the trip generation of the proposed development and to recommend appropriate mitigation measures to accommodate any adverse traffic impact and consequently to improve the traffic flow and circulation in the vicinity of the study area

1.5 Scope of Works

i. This report presents the results of an impact study to fulfill the scope of works outlined underneath.
ii. To conduct inventory review of the existing roadway facilities;
iii. To carry out 24-hour screen line traffic count surveys at Route 100on a typical weekday;
iv. To record the vehicle turning movements at the junctions located along Route 100 which are anticipated to bear the immediate traffic impact from the proposed development;
v. To evaluate the existing traffic conditions in terms of junction performance;
vi. To forecast the trips attracted (ingress traffic) and produced (egress traffic) by the proposed development;
vii. To distribute the generated trips over and above the existing travel demand in the study area for the following years:-
viii. 2017 (before completion of proposed development)
ix. 2018 (upon the completion of the 1 proposed development)
x. 2023(five years after the completion of the5 proposed development)
xi. 2028 (forecasting 5 years after completion with 5.5 percent growth)
xii. To recommend appropriate lane configurations for the study intersections and the impacted road necessary to cater for the trips generated by the Proposed development in specific and overall travel demand within the study area in general;
xiii. To advise the optimal signal timing and phase sequence for the traffic lights; and suggest flyover or new access road and
xiv. To prepare the traffic report for other future proposed deployment to be analyze by others

1.6 Summary

Following the introduction, Chapter Two describes the proposed development framework. Chapter Three depicts the study approach. Chapter Four appraises the existing traffic conditions. Chapter Five details the transportation modeling process. Chapter Six evaluates the future traffic conditions. The findings of the study are summarized in Chapter Seven.

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