

TRACKING OF U-TURN BEHAVIOUR FOR
HEAVY VEHICLES AT THREE LOCATIONS
ALONG FR2
(GAMBANG TO KUANTAN)

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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 of Infrastructure Management.

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STUDENT'S DECLARATION

I hereby declare that the work in this thesis is based on my original work except for quotations and citations which have been duly acknowledged. I also declare that it has not been previously or concurrently submitted for any other degree at Universiti Malaysia Pahang or any other institutions.

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ABSTRACT

The present study provides a methodology for identification of the conflict zone between a turning vehicle and on-coming vehicles at u-turn area. The main purpose of this study is to analysis the u-turn behaviour for the heavy vehicle. In the previous studies, it has been shown that the u-turn behaviour is a complex problem that requires a full understanding of drivers' attitudes and beliefs. The understanding is needed to ensuring the safety of the other road users. Therefore, this study will analyse the u-turn behaviour of heavy vehicle based on the turning radius as a key variable in this study which may affect the result. The scenarios and road environment were based on three selected site locations along FR2 (Gambang to Kuantan).

ABSTRAK

Kajian ini menyediakan metodologi untuk mengenal pasti zon konflik di antara kenderaan yang berpaling dan kenderaan yang datang di kawasan u-turn. Tujuan utama kajian ini adalah untuk menganalisis kelakuan u-turn untuk kenderaan berat. Dalam kajian terdahulu, telah ditunjukkan bahawa tingkah laku u-turn adalah masalah yang kompleks yang memerlukan pemahaman penuh mengenai sikap dan kepercayaan pemandu. Pemahaman diperlukan untuk memastikan keselamatan pengguna jalan raya yang lain. Oleh itu, kajian ini akan menganalisis tingkah laku u-turn kenderaan berat berdasarkan radius putaran sebagai pemboleh ubah utama dalam kajian ini yang boleh menjejaskan hasilnya. Senario dan persekitaran jalan berdasarkan tiga lokasi tapak terpilih di sepanjang FR2 (Gambang ke Kuantan).

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LIST OF ABBREVIATIONS

FR2	Federal Route 2
AASHTO	American Association of State Highway and Transportation Officials
SU	Single Unit
WB	Semi-Trailer

CHAPTER 1

INTRODUCTION

1.1 BACKGROUND OF STUDY

Rapid urbanization increases the number of vehicles significantly in the last two decades. Because of the heavy traffic volumes at signalized at grade U-turn facilities on urban and suburban multilane divided highway, the traffic signal control system installed failed to function efficiently and may lead to the congestions and excessive traffic delays.

A U-turn in driving refers to performing a 180° rotation to reverse the direction of travel. In most of the signalized intersection u-turning movements are not permitted to improve its operation condition through optimizing the conflicts point. However, U-turning movement activities will be different if comparing the type vehicles. The characteristics for heavy vehicles movement will be different compared to the small vehicles.

The turning radius of all heavy vehicles will be different because the heavy vehicle need more space to make the sharpest turning radius for the vehicle. The principal dimensions that affecting design of u-turn area are the minimum centreline turning radius, the wheelbase and the path of the inner rear tyre of the vehicle. Heavy vehicle are wider and have longer wheelbases and greater minimum turning radii. Therefore,

these are the principal characteristic dimensions affecting horizontal roadway design. The longer single-unit of vehicle, it will required the greater minimum turning radii than most vehicle combinations, but because of their greater off tracking, the longer vehicle combinations also require greater widths of turning paths.

In this study, the research will conducted to find out the behaviour for the heavy vehicle in the area of U-turn facilities along FR2 (Gambang to Kuantan). This study will be analyses based on the turning radius of the heavy vehicle at the U-turn area facility. Moreover, this study also will identify what kind of problem that will effected to the traffic movement. Even though driving any vehicle is a challenge, but for drivers of heavy vehicles there are more challenging, because their vehicles are heavier, bigger and longer and are more difficult to control. Heavy vehicle drivers are professionals because they spend most of their working hours on the road. Professional drivers are likely to be on the road more often, for longer hours and at times when driving situations are most dangerous, especially at night. It is at those times when crashes tend to occur.

1.2 PROBLEM STATEMENT

The U-turning movement at a median opening is highly complex and risky when compared with turning movements at intersections. It is because of the high speed and heavy traffic volume of opposite flow and also the turning vehicle has to make an 180° movement and merge with the opposing traffic stream. The space needed for the turning radius of the heavy vehicles causing delay and harm to other road users.

1.3 OBJECTIVE OF THE STUDY

The main purpose for this study is to analyse the behaviour of U-turning movement for heavy vehicles and the effect of the movement based on the turning radius of the heavy vehicles.

1.4 SCOPE OF WORK

The scope of this study includes the following:

- Make an observation and filed work study at the selected U-turn facilities area along Gambang to Kuantan.
- Accumulate data of turning radius for heavy vehicles.

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