

**EVALUATION OF EFFECT OF VARIABLE MESSAGE SIGNS ON TRAFFIC  
SURVEILLANCE**

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## ABSTRACT

Some years ago, progress in road telematics had made it possible to introduce time travel information in real time on VMS devices. Such information can lead road users to avoid congested areas as well as to waiting in a better condition for the end of the congestion. Variable message signs (VMS), also known as changeable message signs (CMS) or dynamic message signs (DMS), are traffic control devices to communicate with motorists. The primary purpose of a VMS is to provide information regarding roadway, traffic, or adverse weather conditions, however, the signs are additionally used to display travel times and public service announcements. This study attempts to utilize archived traffic data of a freeway to assess the accuracy with which VMS display travel time estimates, and driver response to display messages of varying lengths and formatting. Results show that usage of Variable Message Signs reduces the occupancy during the duration of the incident. The results demonstrated that VMS has no significant impact on gap. The variable message signs (VMS) have been widely used in guiding and managing the dynamic traffic with development of intelligent transportation technologies.

## ABSTRAK

Beberapa tahun dulu, kemajuan dalam telematics jalanraya telah menjadikan ia berkemungkinan untuk memperkenalkan informasi perjalanan masa dalam masa benar dalam peralatan VMS. Infomasi dapat mengarahkan pengguna jalanraya untuk mengelakkan kawasan yang sesak selain menunggu dalam keadaan yang selesa untuk pengurangan keadaan sesak. Variable message signs (VMS), juga dikenali sebagai changeable message signs (CMS) or dynamic message signs (DMS) adalah peralatan pengawalan trafik untuk berkomunikasi dengan pengguna. Tujuan utama VMS adalah untuk member infomasi berkenaan lebuhraya, trafik atau pun keadaan cuaca yang teruk. Bagaimanapun, tanda digunakan untuk menunjukkan masa perjalanan dan pengumuman kemudahan public. Kajian ini melihat bagaimana data trafik dari arkib digunakan dalam mengenal-pasti ketepatan dimana VMS dapat menunjukkan masa perjalanan dan maklum-balas pemandu untuk menunjukkan mesej yang berbeza panjangnya dan format. Dapatan kajian menunjukkan penggunaan Variable Message Signs mengurangkan kepenggunaan semasa kejadian. Dapatan menunjukkan VMS tiada impak yang signifikan. Variable message signs telah digunakn secara meluas dalam membantu dan mengurus trafik dengan penubuhan teknologi pengangkutan pintar.

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# CHAPTER 1

## INTRODUCTION

### 1.1 Background of the Study

A Variable Message Sign is a device used to convey information to motorists about events that might affect their travel experience and safety. A variable message sign, often abbreviated VMS is an electronic traffic sign often used on roadways to give travelers information about special events. Such signs warn of traffic congestion, accidents, incidents, roadwork zones, or speed limits on a specific highway segment. In urban areas VMS are used within Parking Guidance and Information systems to guide drivers to available car parking spaces. They may also ask vehicles to take alternative routes, limit travel speed, warn of duration and location of the incidents or just inform of the traffic conditions (Changeable Message Signs – Engineering Policy Guide, 2008).

One of the fundamental requirements of an intelligent road vehicle is to assist the driver in finding their anticipated destination in the most economical, reliable and safe way. Dynamic Route Guidance systems are likely to emerge in a variety of forms over the coming years and offer the potential for improved efficiency both to individual guided drivers and to the network as a whole (Christopher O. Nwagboso, 1997). With the increasing concern on traffic congestion in most of metropolitan cities, Advanced

Traffic Management and Traveler Information Systems are conducted as a possible solution to solve traffic problem. The acronym VMS stands for Variable Message Sign. It is a sign for the purpose of displaying one of a number of messages that may be changed or switched on or off as required (CEN, 2005).

The use of variable message signs (VMS) is generally considered to be a powerful tool to influence route choice so as to increase safety and comfort during driving and improve network performance and to make optimum use of available capacity. Some of metropolitan cities installed VMS on arterial street and freeways to guiding drivers to make choice when there is some unexpected events on the road segment. In general, the function of VMS can be concluded into 3 categories: lane control, speed control and prescription. It not only provides driver information to avoid unexpected events, but also alternative route for driver to make choice (Srinivas Peeta and Shyam Gedela, 2007).

## **1.2 Statement of the Problem**

VMS systems have a significant impact on roadway efficiency, with benefits such as time saving. VMS is an electronic message sign strategically placed along the road network with alternative roads to provide information and recommendations for drivers on traffic conditions. VMS allows operators in Traffic Control Centre to activate or upload new messages via software (Dia, H, 2000 and Hendrickson, C; et.al 1998).

Therefore this study attempts to estimate the effects of Variable Message Signs on traffic control and drivers making decisions.

### **1.3 Aim and Objectives of the Study**

Variable Message Signs (VMS) plays vital roles in Intelligent Transportation System (ITS) such as dynamic route guidance. However, when VMS are implemented along highways, their presence or messages that appear on the VMS affects traffic operations to a certain extent. This study is an attempt to quantify effects of VMS on traffic condition. The study was carried out based on evaluation of effect of VMS in terms of occupancy and gap.

### **1.4 Importance of the Study**

This study is conducted to consider the effects of Variable Message Signs in traffic surveillance. The results of this survey will help improve the quality and availability of traveler information, and will inform the agency `s decisions about improving and expanding VMS technology. Optimized VMS systems will benefit drivers in improved travel times and arrival time certainty.

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