

## ARE TRANSPORT DEMAND MANAGEMENT MEASURES APPLICABLE TO AIM SUSTAINABLE TRANSPORTATION IN HA NOI?

Paper Identification number: SCS12-030

GIANG THI PHUONG BUI

The Project for Traffic Safety Human Resource Development in Ha Noi,  
Department of Transportation in Ha Noi, Viet Nam  
16 Cao Ba Quat Street, Ha Noi, Viet Nam  
Telephone (+84)123 407 6936  
E-mail: [gerbera1712@yahoo.com](mailto:gerbera1712@yahoo.com)

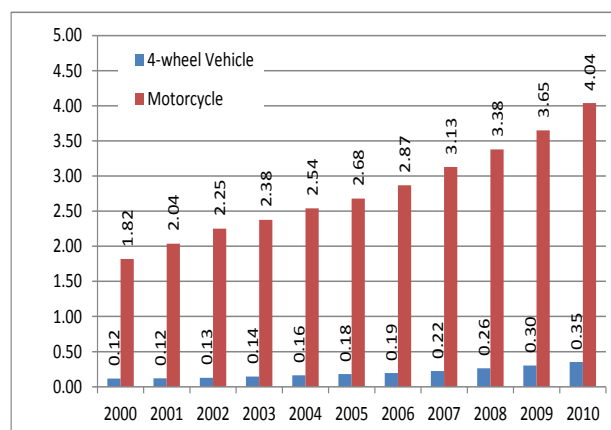
### Abstract

Along with the increasing rate of industrialization and motorization in developing cities like Ha Noi, sustainable transportation has been much taken into consideration. As a number of issues are addressed, for example, traffic congestion, accidents, etc caused by the booming number of cars and motorbikes and vehicle users with poor knowledge and awareness about traffic. Moreover, based on the traffic characteristics in Ha Noi such as limited road network capacity with many small narrow streets, it is tough to apply any transport measures affecting the road infrastructure. It is also because of political and social reasons. This paper argues Transport Demand Management (TDM) has become critical to aim sustainable transportation in Ha Noi the sense that it helps manage transportation system work more effectively rather than building new capacity. On the other hand, in practice, Ha Noi has been applying a variety of TDM measures but whether these measures can bring benefits to the city or not is still being questioned. For instance, regarding to vehicle use related measures, due to the fact that most of Vietnamese travel by motorbikes, it is not easy to achieve the modal shift from private to public transportation such as buses to ease congestion and in many cases, using public transportation is not the most beneficial option for travellers. Or if road pricing is applied, it easily causes the increase in other goods especially when Ha Noi is facing high inflation. This paper addresses the challenges of application of TDM measures and discusses several feasible measures to improve traffic conditions in Ha Noi in the near future.

**Keywords:** Transport Demand Management measures, transportation challenges in Ha Noi, sustainable transportation, public transportation.

### 1. Introduction

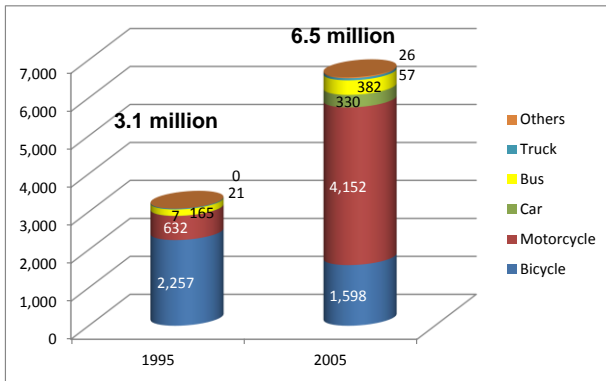
Transportation has become one of the critical issues in many developing countries such as Viet Nam. From sustainable point of view, a number of related issues are currently addressed, for instance, traffic congestion, traffic accidents, etc as transportation problems have been caused by the rapid urbanization, motorization and economic development. In Ha Noi, together with population growth, motorization has been making rapid progress with the increasing number of vehicle, in particular that of motorcycle. During the period of 2000-2010, the number of motorcycle increased from 1.82 to 4.04 million (See Figure 1)



**Fig. 1** Registered Vehicles in Ha Noi City (2000-2010) (million)

**Source:** Traffic Department, Ha Noi Police.

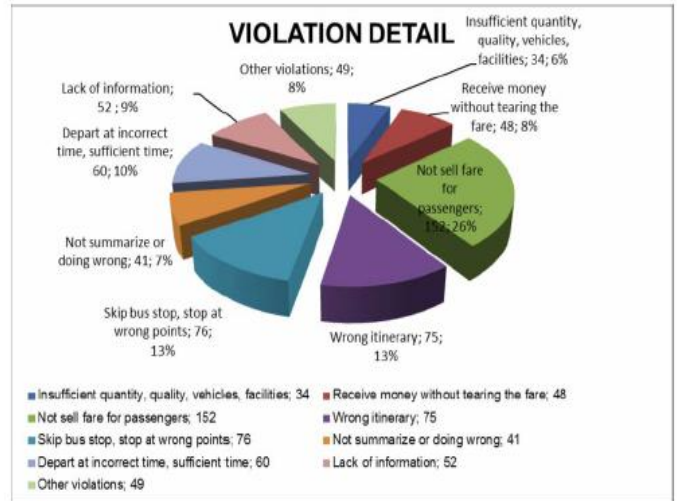
According to JICA Ha Noi Transport Study 1997 and JICA HAIDEP 2007, the number of trip (excluding walk trips) went up more than 2 times (from 3.1 million up to 6.5 million). Of which the number of trip by motorcycle increased more than 6 times in 2005 compared to 1995 (See Figure 2)



**Fig. 2** Number of trips (000/day) excluding walk trips (1995 and 2005)

**Source:** JICA Ha Noi Transport Study 1997 and JICA HAIDEP 2007

In the context that the transportation infrastructure is still low and the growing population results in the increasing private vehicle usage such as motorcycles and cars, congestion in Ha Noi is getting worse and worse. In addition, the current public transportation service has not been able to meet people’s demand both in terms of quality and quantity. Pursuant to the decision of Ha Noi city and as assigned by Ha Noi Department of Transportation, Ha Noi Urban Transport Management and Operation Center elaborated “The Study on Bus Passenger Public Transport Development by 2010 and Vision to 2020” in which a number of bus related violations are listed such as inefficient quantity, quality, vehicles and facilities, receiving money without tearing fare, not sell fare for passengers, skipping bus stop, stopping at wrong points, lack of information, etc. (See Figure 3)



**Fig.3** Detail of Violation

**Source:** The Study on Bus Passenger Public Transport Development by 2010 and Vision to 2020, Ha Noi Urban Transport Management and Operation Center, April 2010.

## 2. The application of TDM measures to tackle with transportation issues in Ha Noi

Based on the traffic characteristics in Ha Noi such as limited road network capacity with many small narrow streets, it is tough to apply any transport measures affecting the road infrastructure, for instance, new road construction, road widening, etc. That is because of political and social reasons and it also requires financial funding and time. Therefore, any measures from supply side approach are likely to be inapplicable, which results in the application from demand side one known as Transport Demand Management (TDM) measures. Regarding to traffic congestion, theoretically, it happens when traffic capacity is smaller than traffic demand, or in other words, the number of roads, the number of lanes as well as transportation facilities, etc don’t satisfy the number of vehicles. TDM helps reduce traffic congestion in particular and improve traffic situation in general in developing cities like Ha Noi in the sense of more efficient traffic control, control of traffic demands by using the modal shift from private modes to public modes and transformation of people’s travelling behaviors.

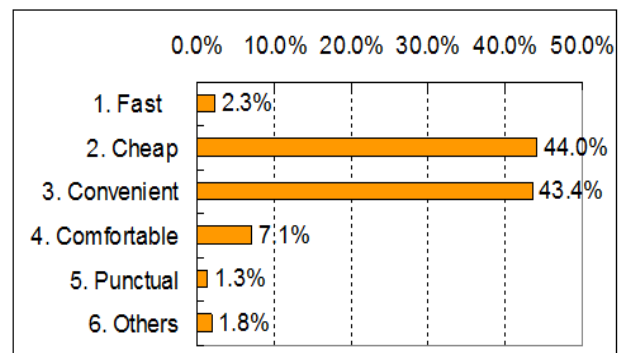
In practice, Ha Noi has been applying several TDM measures including staggered school hours and alternative work schedule, taxi

prohibition, road pricing, parking management and bus transportation improvement. Whether these measures can contribute to traffic congestion mitigation and traffic situation improvement or not is still now being questioned. Firstly, regarding to staggered school hours and alternative work schedule measure, since 1<sup>st</sup> February 2012, Ha Noi decided to adjust work and school time depending on 3 groups (group 1: students, pupils from universities, high school, vocational training school with school time starting before 7am and finishing after 7pm, group 2: pupils from kindergartens, primary schools with school time starting from 8am and finishing at 5pm, governmental officers start working from 8am to 5pm, group 3: commercial and services center (excluding banks and financial institutions) starts working from 9am and finishes at 7pm).<sup>[1]</sup> According to the survey conducted by Ha Noi Socio-Economic Development Research Institute, this measure brings about both positive and negative impacts. On the one hand, serious congestion in some specific intersections have declined dramatically, for example, in Tay Son-Thai Ha- Chua Boc intersection, congestion time declined from 17.00-19.00 down to 17.30-18.30 (reducing more than 1 hour), in Truong Chinh-Giai Phong intersection, there is no congestion at peak hours. On the other hand, in some streets, there are not many changes and recently new congested section occurs, for instance, in the bottleneck of Truong Chinh-Ton That Tung intersection because traffic volume has not changed. Moreover, new partially congested locations are school gates as parents have to wait for picking up their children. Therefore, this measure, to some extent, brings about effectiveness in congestion reduction but it is only seen in some specific intersections in Ha Noi.

Secondly, to ensure orderly organized and urban scenery in Ha Noi, Department of Transportation have been coordinating with City Police to implement strict enforcement and fine illegal parking in specific streets and roads (3 groups: no parking services, no parking on street roads, parking is allowed using sidewalks but need 1.5 m reserves for pedestrians without any interferes to traffic flow). However, in practice, there are a number of illegal parking cases on street roads and sidewalks and the authorized enforcement and management is still not weak. Parking fee is not regulated and it diversifies in different parking areas. Parking becomes a big

burden for cars when they are not able to find parking locations as well. Even though the city government is trying to monitor parking activities, parking facilities haven't meet high parking demand from the local society. Besides, Ha Noi is calling investors for investing on parking facilities but from investors' point of view, it costs much money and time so insufficient parking facilities become more and more problematic when the number of motorbikes and cars are rapidly increasing. Therefore, even if road-users aware of parking their vehicles in legal locations, they cannot find them especially in areas with high traffic volume.

Thirdly, public transportation improvement is a key measure to achieve sustainable and effective transportation goal in developing cities like Ha Noi. In 2009, there were 60 city bus routes served by 983 buses transporting 413 million passengers (1.1 million passengers/day and approximately 10% of modal share).<sup>[2]</sup> As can be seen from Figure 4, the major reason for bus usage is because it is cheap and convenient.



**Fig. 4** Reasons for bus usage

**Source:** The Comprehensive Urban Development Programme in Ha Noi Capital City of the Socialist Republic of Vietnam (HAIDEP), March 2007.

However, from bus-users' point of view, a number of issues are much concerned such as lack of information on bus services, inappropriate environment at bus stops, overloaded and unsecured condition, bus fare subsidy, etc. Bus usage demand exceeds its supply from bus operators even when they are subsidized by the city government. To apply modal shift from private modes to public modes, it is necessary to help

people aware of the benefits of public transportation (such as bus) to mitigate traffic congestion and protect environment. According to Bus Transport Development Plan up to 2015 and 2020 by Ha Noi People's Committee, the objective is to develop public transport system into an advanced, effective, environment friendly system, to promote public transport use and make public service satisfy 15% and 20% of social demand by 2015 and 2020, respectively.

**Table 1** Development Indicators for Public Bus System

Indicator	Unit	2011-2015	2016-2020
Number of bus routes	Route	91	98
Volume of Passenger	Mil/Day	2.14	2.73
Modal Share	%	15	20

**Source:** Ha Noi People's Committee, Bus Transport Development Plan up to 2015 and 2020.

Besides promoting public transport use, it is also essential to improve its level of service to make it more convenient and attractive to road-users. To do so, it requires close and effective cooperation between stakeholders (bus-user, bus operator and the government) in terms of identifying the most appropriate measures. Regarding to bus fare issue, consensus is not easy to be achieved because of different opinions from stakeholders. In fact, the city government is subsidizing the big amount of money, therefore, in the context of instable costs in fuel and wages, it should be taken into consideration to which level fare setting is.

Furthermore, other TDM measures such as taxi prohibition, road pricing are contributing to reduce vehicle's mobility in city centers and traffic congestion but they also affect, to some extent, the economic and social activities of people. In case of high inflation, it leads to indirect causes such as big cost burdens for enterprises and of course residents in the city.

### 3. Conclusion

The application of TDM has become critical and challenging to alleviate transportation

problems in Ha Noi. From the above analysis, whether these measures are applicable or not are still being questioned and they need investigating further. In the near future, Ha Noi is focusing on public transportation improvement to mitigate traffic congestion particularly and develop more effective transportation system generally. Evaluating the effectiveness of these measures is based on the benefit-cost analysis from socio-economic perspective by scientific methodology and collecting opinions from related stakeholders. In addition, not only these measures themselves but also their combinations should be taken into account to bring benefits to the community for sustainable goal.

### 4. Acknowledgements

I would like to give the most sincere thanks to my colleagues in The Project for Traffic Safety Human Resource Development in Ha Noi. They have given me a lot of valuable trainings and consultancy about transportation issues. I do hope to take the opportunity of participating in the 4<sup>th</sup> ATRANS Student Chapter Session 2012 to exchange ideas and information as well as build network with other participants in this field.

### Endnotes

- [1] Ha Noi People's Committee. (2012). *Decision 315/QĐ-UBND*.
- [2] Ha Noi Urban Transport Management and Operation Center. (2009).

### References

- [1] Almec Corporation. (2012). *The Project for Improving Public Transportation in Ha Noi*.
- [2] Almec Corporation, Nippon Koei Co, Yachiyo Engineering Co. (2007). *The Comprehensive Urban Development Programme in Ha Noi Capital City of the Socialist Republic of Vietnam (HAIDEP)*.
- [3] Ha Noi People's Committee, *Bus Transport Development Plan up to 2015 and 2020*.
- [4] Ha Noi Urban Transport Management and Operation Center. (2010). *The Study on Bus Passenger Public Transport Development by 2010 and Vision to 2020*.